Summary of Responses to EPA Regulated Municipal Separate Storm Sewer Systems (MS4s) Questionnaire

The Office of Management and Budget (OMB) approved three questionnaire instruments (also called information collection requests or ICRs) designed to collect information from regulated MS4s, non-regulated MS4s, and transportation MS4s. The purpose of these ICRs was to collect information to help EPA assess whether it should revise its existing stormwater requirements, and if so, how and to what extent it should revise these requirements. More specifically, the purpose was to collect baseline information to inform EPA's analyses of a possible stormwater rulemaking proposal.

EPA used the information collected in the ICRs to characterize current stormwater practices and requirements, environmental impacts of stormwater discharges, costs associated with controlling and regulating stormwater discharges, and the financial capability of those that could be subject to revisions to the federal stormwater requirements.

In August 2010, EPA sent selected recipients a letter which notified them of their selection and provided a link to an electronic version of the questionnaire. Recipients had 60 days from receipt of the letter to complete and return the questionnaire. EPA distributed the MS4 questionnaires to a statistically-sampled subset of these facilities, sending it to 608 regulated MS4s, 84 regulated Department of Transportation MS4s and 932 federally non-regulated MS4s.

EPA received responses from 471 regulated MS4s, 74 regulated Department of Transportation MS4s, and 294 federally non-regulated MS4s.

This summary is based on the March 25, 2011, delivery of the regulated MS4 ICR database of responses with 471 total respondents. The summary includes questions from Sections A and B of the regulated MS4 ICR form.

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Section A: Technical Information (Questions A-1 to A-14)

Questions A-1 and A-2 requested background information about those who responded to the survey, including Name and Title, Agency, Address, Phone Number, Email Address, Best Time to Contact, and MS4 Owner and Operator Department/Agency. **Question A-3** asked the respondent to identify their MS4 owner/operator type.

There were a total of 471 respondents. Unless otherwise noted, all percentages are percentages of all Phase I respondents (249), all Phase II respondents (222), and all respondents (471).

Table A-1. MS4s responding to survey

State	Phase I	Phase II	State	Phase I	Phase II	State	Phase I	Phase II
AK	1	1	LA	3	1	OH	4	22
AL	6	2	MA	3	8	OK	0	3
AR	1	1	MD	6	2	OR	5	1
AZ	5	3	ME	0	2	PA	1	22
CA	95	7	MI	3	10	PR	0	2
CO	2	5	MN	1	12	SC	2	2
CT	1	2	MO	2	6	SD	1	1
DE	1	1	MS	1	1	TN	3	3
FL	42	6	MT	0	1	TX	6	12
GA	9	3	NC	4	2	UT	1	2
HI	1	0	ND	0	1	VA	8	4
IA	1	2	NE	2	2	VT	0	1
ID	1	1	NH	0	1	WA	5	7
IL	1	11	NJ	2	7	WI	4	5
IN	1	7	NM	1	1	WV	0	1
KS	2	2	NV	6	0	WY	0	1
KY	2	2	NY	3	20			

Question A-4 asked the respondent whether they were subject to more than one MS4 permit:

Table A-4. Subject to more than one MS4 permit

	Yes		N	lo	No Answer		
MS4 Type	Count	%	Count	%	Count	%	
Phase I	0	0%	249	100%	0	0%	
Phase II	0	0%	219	99%	3	1%	
All	0	0%	468	99%	3	1%	

Question A-5 asked the respondent to identify which best describes their MS4 permit:

- Under a Large/Medium MS4 permit (Phase I)
- Under a Small MS4 permit (Phase II)

Table A-5. Types of MS4 permits

Permit Type	Total Number Responding	Percentage of Total
Phase I only	248	53%
Phase II only	222	47%
Both Phase I and Phase II	1	0%

Question A-6 asked the respondent whether they were under an individual or general MS4 permit:

Table A-6. Individual or general permit

	Phase I		Pha	se II	All		
Permit Type	Count	%	Count	%	Count	%	
Individual permit	171	69%	37	17%	208	44%	
General permit	78	31%	177	80%	255	54%	

Note: Ten respondents failed to indicate whether they were under an individual or general MS4 permit. Two respondents indicated that they were under both an individual and a general permit.

Question A-7 asked the respondent how many permits terms they have completed under the federal MS4 stormwater program:

- None, we have not yet completed our first permit term
- 1 permit term we are currently covered under our second MS4 permit
- 2 permit terms we are currently covered under our third MS4 permit
- 3 permit terms we are currently covered under our forth MS4 permit
- 4 or more permit terms we are currently covered under our fifth or more permit

Table A-7. Permit terms completed

MS4	None None		1 Permit		2 Permits		3 Permits		≥4 Permits	
Type	Count	%	Count	%	Count	%	Count	%	Count	%
Phase I	17	7%	72	29%	76	31%	57	23%	24	10%
Phase II	100	45%	98	44%	20	9%	1	0%	0%	0%
All	117	25%	170	36%	96	20%	58	12%	24	5%

Note: Two Phase I MS4s and four Phase II MS4s provided no answer.

Question A-8 asked how stormwater is conveyed in your jurisdiction?

- Entirely by the MS4
- If not entirely by the MS4, what are the other means of stormwater conveyance in your jurisdiction? Check all that apply.
 - o Combined (storm and sanitary) sewer system
 - o Privately-owned and operated storm sewer system (e.g., industrial park, subdivision/homeowners association)
 - o Individual direct stormwater discharges (e.g., private home, business or industry discharges directly to a waterbody)
 - o Other

Table A-8. Stormwater conveyance

MS4	Entirely	by MS4	Combine Sys	ed Sewer tem	Privately	y Owned	Individu	al Direct	Otl	ner
Type	Count	%	Count	%	Count	%	Count	%	Count	%
Phase I	69	28%	23	9%	156	63%	138	55%	71	29%
Phase II	75	34%	23	10%	113	51%	105	47%	41	18%
All	144	31%	46	10%	269	57%	243	52%	112	24%

Question A-9 asked which of the following best describes the basis for the geographical extent of your MS4 permitted area?

Table A-9. Geographical basis

	Phase I		Pha	se II	A	ll
Response	Count	%	Count	%	Count	%
Based on the urbanized area	14	6%	63	28%	77	16%
boundary (as defined by the U.S.						
Census)						
Based on my jurisdictional	184	74%	135	61%	319	68%
boundary (city, town, county, etc.)						
Based on sewer, irrigation,	11	4%	3	1%	14	3%
drainage, flood control district						
Based on watershed boundaries	7	3%	8	4%	15	3%
Based on watershed districts (or	2	1%	0	0%	2	0%
other watershed entity)						
Other	29	12%	6	3%	35	7%
No Answer	2	1%	7	3%	9	2%

Question A-10 asked does your entire jurisdiction fall within an urbanized area (as defined by the U.S. Census):

Table A-10. Urbanized area

	Phase I		Pha	se II	All		
MS4 Type	Count	%	Count	%	Count	%	
Yes	170	68%	135	61%	305	65%	
No	77	1%	79	4%	10	2%	
No Answer	2	31%	8	36%	156	33%	

Question A-11 asked does your stormwater MS4 permit cover stormwater discharges outside the Census-defined urbanized area?

Table A-11. Discharges outside urbanized area

	Phase I		Pha	se II	All		
MS4 Type	Count	%	Count	%	Count	%	
Yes	87	35%	43	19%	130	28%	
No	160	64%	171	77%	331	70%	
No Answer	2	1%	8	4%	10	2%	

Question A-12 asked for the population, total area, and estimated percent directly connected impervious area of both the permitted MS4 area and the entire jurisdiction as of 2009?

NOTE: The table below includes only those MS4s that reported total population for the permitted MS4 area. For the jurisdiction population summary, jurisdiction population is derived from the 2010 Census. For the jurisdiction total area, only those respondents who reported area and area units are included.

Table A-12a. Permit population and area (from survey responses)

	Number			Number		
MS4 Type	Responding	Permit Population		Respondinga	Permit Total Area (mi ²)	
Phase I	102	Min	1	108	Min	0.25
		Median	190,448		Median	70
		Max	15,000,000		Max	5,353
Phase II	106	Min	100	106	Min	0.002
		Median	10,425		Median	8.54
		Max	6,600,000		Max	113,998

a. There were five responses for which units of area could not be determined. One respondent reported housing units, which could not be converted to square miles. One respondent reported a jurisdictional area of 133 square feet, which was excluded from the results.

Table A-12b. Jurisdiction population (from Census 2010) and area (from survey responses)

	Number of			Number		
MS4 Type	Jurisdictions ^a	Jurisdiction Population		Responding ^b	Jurisdiction Total Area (mi ²)	
Phase I	232	Min	3,282	218	Min	1.2
		Median	147,231		Median	54.29
		Max	9,818,605		Max	8,140
Phase II	214	Min	371	170	Min	0.002
		Median	14,273		Median	17.495
		Max	3,817,117		Max	6,659

a. Census 2010 population data were not available for 17 Phase I MS4s or 8 Phase II MS4s that were categorized as sewer districts, flood control districts, or other non-governmental agencies or were located in Puerto Rico.

Question A-13 asked if your MS4 permitted area is less than the jurisdictional area, which of these MS4 stormwater program activities are implemented within your entire jurisdiction?

Table A-13. MS4 program activities

	Phase I		Pha	se II	A	11
Activity	Yes	%	Yes	%	Yes	%
Public education and outreach	88	35%	100	45%	188	40%
Public involvement	71	29%	85	38%	156	33%
Illicit discharge and elimination	76	31%	79	36%	155	33%
Pollution prevention/good housekeeping (includes street	79	32%	86	39%	165	35%
sweeping)						
Record keeping	79	32%	77	35%	156	33%
Erosion and sediment controls for construction activities	85	34%	95	43%	180	38%
Post construction stormwater requirements for new and	71	29%	80	36%	151	32%
redevelopment						
Industrial stormwater inspections	55	22%	11	5%	66	14%
Stormwater monitoring	52	21%	25	11%	77	16%
Other ^a	22	9%	11	5%	33	7%
None	1	0%	4	2%	5	1%
Not applicable	153	61%	113	51%	266	56%

a. Other responses indicated various types of visual inspection and monitoring were conducted outside the MS4 area, while others indicated that BMPs were implemented. Several indicated that there are no areas of the jurisdiction that are outside the MS4 area.

b. There were nine responses for which units of area could not be determined. One respondent reported housing units and two reported miles of roads, neither of which could be converted to square miles.

Question A-14 asked which of the following activities apply to stormwater discharges within your jurisdiction which do not discharge to the MS4 but discharge to a private system or directly to a receiving waterbody? Check all that apply.

Table A-14. Activities for discharges outside MS4

	Phase I		Phase II		All	
Activity	Yes	%	Yes	%	Yes	%
MS4 operator regulates these discharges through local	168	67%	136	61%	304	65%
ordinance or other regulatory mechanism						
MS4 operator reviews site plans (grading and/or land use) for	186	75%	169	76%	355	75%
these developments						
MS4 operator reviews building permits for these developments	173	69%	150	68%	323	69%
Other ^a	43	17%	20	9%	63	13%
MS4 operator does not regulate these direct discharges.	32	13%	32	14%	64	14%

a. Other responses: Many said this question was not applicable because all of their stormwater discharges to the MS4. Several said that all of the activities or some combination of the activities listed applied to areas that discharged outside the MS4. Many respondents said they review site plans and/or permits for developments that discharge outside the MS4. Other activities performed outside the MS4 include industrial stormwater and IDDE programs, dry weather screening, proactive inspections, and monitoring. Many indicated that program activities applied jurisdiction-wide regardless of MS4 boundaries, but did not include state/federal or other public property. Some respondents partner with other agencies to regulate discharges outside the MS4 area.

Specific Stormwater Program Components (Questions A-15 to A-28)

Question A-15 asked which of the following activities were parts of the public education and outreach component of your MS4 stormwater program from FY 2005 - 2009? Check all that apply.

Table A-15. Public education and outreach activities

	Pha	se I	Phas	se II	A	11
Activity	Yes	%	Yes	%	Yes	%
Brochures, fact sheets, guides, or similar documents	238	96%	199	90%	437	93%
Radio features	109	44%	49	22%	158	34%
Television advertisements or programs	139	56%	70	32%	209	44%
Educational programs (for the general public, school children, teachers, etc.)	211	85%	148	67%	359	76%
Event participation (conference participation, earth day events, fairs, etc.)	223	90%	161	73%	384	82%
Staff training	232	93%	178	80%	410	87%
Contractor training	152	61%	75	34%	227	48%
Storm drain labeling (stenciling or marking)	215	86%	144	65%	359	76%
Stormwater hotlines	171	69%	77	35%	248	53%
Direct mail	143	57%	100	45%	243	52%
Surveys	130	52%	51	23%	181	38%
Tributary signage	67	27%	35	16%	102	22%
Watershed or floodway signage	77	31%	31	14%	108	23%
Website	205	82%	172	77%	377	80%
Car washing public program	62	25%	20	9%	82	17%
Other ^a	69	28%	42	19%	111	24%
None	4	2%	8	4%	12	3%

a. Other comments: Volunteer events: adopt-a-stream, clean-up days, and other events. Environmental education: landscaping/irrigation seminars, shoreland management workshops, outdoor classrooms, field trips, and booths at community events. Giveaways: calendars, soil test kits, native plant plugs, seed packets, pet waste bags, rain barrels. Various methods of advertising: billboards, bus/shelter placards, street sweeper/vacuum truck placards, web streaming, television advertising/interviews, murals, zoo/museum exhibits, outfall signage, point-of-purchase campaigns, kiosks, door hangers, and literature attached to permit applications and distributed during inspections. Other: public reporting hotlines, composting, recycling, and pet waste reduction strategies.

Question A-16 asked which of the following activities were parts of the public involvement component of your MS4 stormwater program from FY 2005 - 2009? Check all that apply.

Table A-16. Public involvement activities

	Phase I		Phas	se II	All	
Activity	Yes	%	Yes	%	Yes	%
Public meetings/citizen panels	166	67%	149	67%	315	67%
Volunteer water quality monitoring	69	28%	42	19%	111	24%
Volunteer educators/speakers	94	38%	63	28%	157	33%
Storm drain labeling (stenciling or marking)	185	74%	127	57%	312	66%
Community clean-ups	200	80%	142	64%	342	73%
Voluntary stormwater retrofitting	54	22%	20	9%	74	16%
Community grant programs	60	24%	29	13%	89	19%
Tree planting	118	47%	75	34%	193	41%
Citizen watch groups	36	14%	17	8%	53	11%
"Adopt A Storm Drain" programs	22	9%	10	5%	32	7%

	Phase I		Pha	se II	All	
Activity	Yes	%	Yes	%	Yes	%
Other ^a	61	24%	46	21%	107	23%
None	10	4%	19	9%	29	6%

a. "Adopt-a-" programs, Booth-in-a-Box, public reporting hotlines, pet waste program, booths, forums, educational displays, land grants, collection/drop-off events, inlet markings, festivals, public meetings, environmental education/outdoor classrooms, planting, art programs, public surveys, giveaways, workshops, BMP park, clean-ups, teacher action grants, turf conversion programs, stream restoration, and watershed stewardship.

Question A-17 asked which of the following activities were parts of the illicit discharge component of your MS4 stormwater program from FY 2005 - 2009? Check all that apply.

Table A-17. Illicit discharge activities

	Pha	se I	Phas	se II	Al	l
Activity	Yes	%	Yes	%	Yes	%
Paper tracking/inventory of outfalls	135	54%	125	56%	260	55%
Database tracking/inventory of outfalls	161	65%	116	52%	277	59%
Storm sewer system mapping	207	83%	170	77%	377	80%
Outfall inspections	186	75%	159	72%	345	73%
Stream inspections	109	44%	84	38%	193	41%
Field staff training to identify and eliminate	211	85%	136	61%	347	74%
illicit discharges						
Correcting cross connections	140	56%	66	30%	206	44%
Retrofitting for spill prevention	57	23%	20	9%	77	16%
Field/indicator sampling	139	56%	48	22%	187	40%
Laboratory analyses	142	57%	44	20%	186	39%
Priority area identification (i.e., prioritizing	113	45%	62	28%	175	37%
specific areas of your system where the						
probability of illicit discharges may be higher)						
Public reporting (i.e., hotline for reporting	194	78%	100	45%	294	62%
illicit discharges)						
Other ^a	49	20%	32	14%	81	17%
None	5	2%	15	7%	20	4%

a. Storm drain marking; addressing citizen and staff complaints; ordinance adoption; visual inspections and monitoring channels, outfalls, and suspected discharges; good housekeeping; coordinating with other agencies; inspecting stormwater facilities; designating an environmental crimes officer and/or response team; dry weather monitoring; sanitary sewer overflow and septic failure reduction; spill-prevention retrofits; HHW collection; prevention of SSOs; illicit connection field screening; GIS mapping; tracking of illicit discharges/connections; industrial/commercial inspections; motor vehicle accident mitigation program; municipal facility inspections; enforcement; wastewater pretreatment inspection/enforcement; public notice; site reviews; television inspection of pipes.

Question A-18 asked which of the following activities were parts of the pollution prevention/good housekeeping/pollution minimization component of your MS4 stormwater program from FY 2005–2009? Check all that apply.

Table A-18. Pollution prevention activities

	Phase I		Phase II		A	ll
Activity	Yes	%	Yes	%	Yes	%
Inventory of municipal facilities	197	79%	144	65%	341	72%
Municipal facility assessment (to determine	174	70%	123	55%	297	63%
the facility's potential to discharge pollutants)						
Outdoor vehicle washing	173	69%	89	40%	262	56%
Outdoor fueling operations	178	71%	94	42%	272	58%
Outdoor vehicle maintenance	146	59%	71	32%	217	46%

	Phase I		Phase II		Al	l
Activity	Yes	%	Yes	%	Yes	%
Outdoor de-icing/anti-icing material storage	65	26%	85	38%	150	32%
Periodic municipal facility inspections for	193	78%	118	53%	311	66%
stormwater controls						
Storm sewer system maintenance activities	231	93%	175	79%	406	86%
(includes inspections and cleaning)						
Street sweeping activities	225	90%	171	77%	396	84%
Pesticide/herbicide application and	184	74%	77	35%	261	55%
management requirements						
Fertilizer application and management	139	56%	62	28%	201	43%
requirements						
Pet waste cleanup or collection ordinance or	124	50%	76	34%	200	42%
other regulatory requirements						
Turf management requirements	58	23%	21	9%	79	17%
Field staff pollution prevention training	200	80%	126	57%	326	69%
Contractor pollution prevention training	116	47%	38	17%	154	33%
Other ^a	37	15%	23	10%	60	13%
None	3	1%	10	5%	13	3%

a. Other responses: Snow storage site building and maintenance, adopting minimal salting practices, installation of stormwater treatment devices, outdoor fueling procedures, municipal yard BMPs and training, indoor vehicle washing/maintenance, monitoring, sweeping sidewalks or city-owned parking lots, green streets, trash control measures for city-permitted events, turf management, hazardous waste storage BMPs, training and workshops, reviewing/updating the SWMP, implementing SWPPPs for municipal facilities, conducting site visits to ensure source control implementation, pet waste stations and outreach campaigns, leaf pickup (seasonal), contractor training, P2/GH manuals, waste disposal events, commercial pesticide applicator seminars, residential landscape management workshops, contract requirements for pest control operators, yard waste/composting, GIS database for BMP inventory, and adopting legislation.

Question A-19 asked whether you have ordinances or other regulatory mechanisms that prohibit/ban or limit/restrict the sale or use of nitrogen or phosphorus fertilizers, phosphorus detergents or specific pesticides as a source control measure for stormwater?

Table A-19. Nutrient and chemical regulation

	Phas	e I	Phase II		All	
Activity	Yes	%	Yes	%	Yes	%
Nitrogen Fertilizer					<u>.</u>	
Prohibit sale	2	1%	0	0%	2	0%
Prohibit usage	5	2%	3	1%	8	2%
Limit usage	19	8%	7	3%	26	6%
No prohibition/not applicable	154	62%	132	59%	286	61%
Phosphorus Fertilizer						
Prohibit sale	3	1%	6	3%	9	2%
Prohibit usage	11	4%	13	6%	24	5%
Limit usage	22	9%	8	4%	30	6%
No prohibition/not applicable	148	59%	123	55%	271	58%
Phosphorus Detergent						
Prohibit sale	9	4%	5	2%	14	3%
Prohibit usage	2	1%	5	2%	7	1%
Limit usage	13	5%	3	1%	16	3%
No prohibition/not applicable	155	62%	124	56%	279	59%

	Pha	Phase I		se II	A	.11			
Activity	Yes	%	Yes	%	Yes	%			
Pesticides									
Prohibit sale	8	3%	1	0%	9	2%			
Prohibit usage	10	4%	2	1%	12	3%			
Limit usage	14	6%	7	3%	21	4%			
No prohibition/not applicable	143	57%	126	57%	269	57%			
Other									
Prohibit sale	2	1%	2	1%	4	1%			
Prohibit usage	3	1%	4	2%	7	1%			
Limit usage	18	7%	6	3%	24	5%			
No prohibition/not applicable	62	25%	54	24%	116	25%			

Note: 221 respondents (47%) indicated that this question was not applicable.

Question A-20 asked, if you answered yes to A-19, does the ordinances or other regulatory mechanisms that prohibits or restricts the sale or use of nitrogen or phosphorus fertilizers, detergents or specific pesticides apply to residential, commercial or municipal or public areas?

Table A-20. Applicability of nutrient and chemical regulation

	Pha	Phase I		se II	All	
Activity	Yes	%	Yes	%	Yes	%
Residential areas	39	16%	17	8%	56	12%
Commercial areas	39	16%	17	8%	56	12%
Municipal or other public areas	54	22%	22	10%	76	16%
Other	13	5%	6	3%	19	4%
Not applicable	170	68%	172	77%	342	73%

Question A-21 asked, if you answered yes to A-19, do you have data indicating water quality improvements as a result of the ban or limit on usage of nitrogen or phosphorus fertilizers, detergents or specific pesticides as a source control measure for stormwater discharge?

Table A-21. Water quality improvement data

	Phase I		Pha	se II	All	
Response	Yes	%	Yes	%	Yes	%
Yes	17	7%	1	0%	18	4%
No	46	18%	29	13%	75	16%
No applicable	166	67%	167	75%	333	71%
No answer	20	8%	25	11%	45	10%

Question A-22 asked for which of the following activities were MS4 stormwater program records or reports kept from FY 2005 - 2009? Check all that apply.

Table A-22. Records and reports on activities

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
Spill response	213	86%	86	39%	299	63%
Construction inspection	224	90%	153	69%	377	80%
Industrial inspection	188	76%	20	9%	208	44%
Monitoring/program assessment	227	91%	138	62%	365	77%

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
Stormwater control inspection, operation and maintenance activities	185	74%	73	33%	258	55%
Illicit discharge detection and elimination	212	85%	133	60%	345	73%
Stormwater program activity prioritization	106	43%	51	23%	157	33%
Other	40	16%	29	13%	69	15%
None	4	2%	24	11%	28	6%

a. Other responses: Work order system for tracking activities; activities specific to certain kinds of facilities and projects; amount of deicing agents used; industrial, business, construction site, municipal facility, and BMP inspection records; BMP installations; hotline calls; enforcement activities; nonstormwater discharge evaluations; city code language and revisions; city contract language for stormwater program requirements; cleanup/disposal programs and solid waste collection data; training and public education; program revenue and expenditures, SWPPP and WQMP reviews; SSO response; CSO monitoring; wet weather and dry weather sampling; O&M activities (inlet control maintenance; street sweeping and catch basin cleaning; pesticide, herbicide, and fertilizer use; native plant revegetation and tree planting); storm sewer construction, infrastructure inventory, and retrofit projects; stormwater permits; land acquisition; intergovernmental coordination; mapping; annual reports;

Question A-23 asked for a description of any data (may include water quality or water quantity monitoring) that has shown the effectiveness of any component of your MS4 stormwater program in protecting waterbodies from stormwater impacts. Include references to any data or other information you may have.

Table A-23. Data on MS4 protection of waterbodies

	Pha	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%	
Available	147	59%	49	22%	196	42%	
Not available	102	41%	173	78%	275	58%	

Question A-24 asked for a description of any data (may include water quality or water quantity monitoring) that has shown how any component of your MS4 stormwater program has **NOT** been effective in protecting waterbodies from stormwater impacts. Include references to any data or other information you may have.

Table A-24. Data on MS4 ineffectiveness regarding waterbodies

	Pha	Phase I		se II	All	
Response	Yes	%	Yes	%	Yes	%
Available	91	37%	22	10%	113	24%
Not available	158	63%	200	90%	358	76%

INDUSTRIAL

Question A-25 asked which of the following industrial stormwater activities have you carried out from FY 2005 - 2009? Check all that apply.

Table A-25. Industrial activities

	Phase I		Phase II		All	
Activity	Yes	%	Yes	%	Yes	%
Inventory of industrial facilities	183	73%	21	9%	204	43%
Education of industrial operators about	148	59%	14	6%	162	34%
stormwater requirements and/or controls						
Site inspection of industrial facilities	183	73%	30	14%	213	45%
Site inspection of commercial facilities	172	69%	35	16%	207	44%
Training of inspectors	171	69%	23	10%	194	41%
Other ^a	40	16%	24	11%	64	14%
None	30	12%	147	66%	177	38%

a. Other responses: Adjacent right-of-way inspections, inspections related to illicit discharge investigations, pretreatment inspections, developing a fee-based system for annual inspection, adoption and implementation of intergovernmental agreements, alerting the state agency of noncompliant sites, inspection report tracking, facility inventories, monitoring and outfall testing, training and outreach, certification programs, mailing pamphlets and surveys, complaint response, correcting inaccurate NACIS/SIC coding, SWPPP review at NOI sites, reviewing DMRs and plans, pre-enforcement, and enforcement. Several respondents indicated they had no industrial activity. One respondent reported that they only perform construction inspections (industrial handled by state agencies). Several others said that the industrial program handled by another local/state jurisdiction.

Question A-26 asked were the stormwater industrial activities that you carried out as described in A-25 requirements of:

Table A-26. Stormwater activity basis

	Phase I		Phase II		All	
Activity	Yes	%	Yes	%	Yes	%
Phase I MS4 permit requirement	23	9%	31	14%	54	11%
Phase II MS4 permit requirement	14	6%	4	2%	18	4%
Industrial stormwater permit requirement	19	8%	14	6%	33	7%
(multi-sector general permit)						
Local ordinance requirement	152	61%	14	6%	166	35%
Other ^a	40	16%	148	67%	188	40%
Not applicable	0	0%	1	0%	1	0%
No answer	1	0%	10	5%	11	2%

a. Other responses indicated that the question was not applicable or there were no industrial activities in the jurisdiction.

Question A-27 asked what is the number of the industrial facilities within your MS4 service area that are included in the sectors classified for NPDES coverage under 40 CFR 122.26(b)(14)? How many of those facilities have you inspected in the last 5 years through your MS4 stormwater program?

Table A-27a. Industrial facility inspections

MS4 Type	Statistic	2005	2006	2007	2008	2009
Number of in	ndustrial sites					
Phase I	Min	0	0	0	0	0
	Median	1	0.5	1	0.5	1
	Max	6,630	9,740	10,000	10,665	11,000
	Count	67	68	69	70	74
Phase II	Min	0	0	0	0	0
	Median	53	53.5	63	52.5	56.5
	Max	6,630	9740	10,000	10,665	11,000
	Count	141	144	147	146	154
All	Min	0	0	0	0	0
	Median	18.5	19.5	19.5	17	24
	Max	6,630	9,740	10,000	10,665	11,000
	Count	208	212	216	216	228
Number of in	nspections conduc	ted through you	r MS4 program			
Phase I	Min	0	0	0	0	0
	Median	0	0	0	0	0
	Max	1,326	1,948	1,999	2,133	2,187
	Count	65	65	65	67	69
Phase II	Min	0	0	0	0	0
	Median	26	21	25	20	28
	Max	4,752	3,744	4,616	5,517	5,569
	Count	156	156	160	159	159
All	Min	0	0	0	0	0
	Median	10	10	9	8.5	11
	Max	4,752	3,744	4,616	5,517	5,569
	Count	221	221	225	226	228

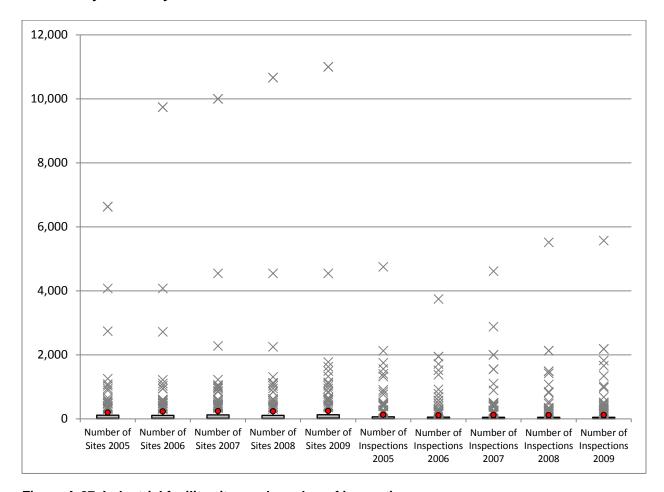


Figure A-27. Industrial facility sites and number of inspections

Table A-27b. Industrial facilities not tracked

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
My MS4 program does not track industrial facilities	53	21%	156	70%	209	44%
My MS4 program does not perform industrial inspections	60	24%	153	69%	213	45%

CONSTRUCTION PROGRAM

Question A- 28 asked which of the following construction stormwater activities have you carried out from FY 2005 - 2009? (Check all that apply.)

Table A-28. Construction activities

	Phase I		Phase II		All	
Activity	Yes	%	Yes	%	Yes	%
Review site plans	234	94%	206	93%	440	93%
Tracking/ inventory of sites or stormwater	186	75%	112	50%	298	63%
management practices						
Inspections	230	92%	185	83%	415	88%
Field staff training	217	87%	129	58%	346	73%
Contractor training	120	48%	69	31%	189	40%
Enforcement	213	86%	143	64%	356	76%
Complaint response	232	93%	166	75%	398	85%
Other ^a	37	15%	23	10%	60	13%
None	7	3%	7	3%	14	3%

a. Other responses: Education/outreach: conducting contractor training and certification, developing guidance, actively promoting LID/green site design practices, holding preconstruction meetings, creating a SWPPP template/tool. Enforcement: notifying the state agency that a permit is required, enforcing violations using NOVs, referring non-compliant sites to the state agency for enforcement. Legal review: adopting or updating an ordinance, reviewing land use regulations to meet MS4 requirements. Plan review: requiring an NOI and BMP checklist in lieu of plan review, conditioning plan acceptance on incorporation of infiltration-based BMPs, requiring permit security deposit and fees/bonds, issuing drainage agreements, inspecting publicly owned construction sites, checking that BMPs are installed as approved. Other: conducting monitoring, establishing a public reporting hotline, participating in a local ESC conference, setting up a GIS database to track inspections. Several respondents stated that other jurisdictions handle construction activities, and a few other respondents indicated that they only review public projects. One stated that complaint response was spotty because there were no individuals responsible for this task. Two respondents indicated that there haven't been any development activities within the jurisdiction.

Post-Construction (Questions A-29 to A-43)

Question A-29 asked which of the following post construction stormwater activities have you carried out from FY 2005 - 2009? (Check all that apply.)

Table A-29. Post-construction activities

	Pha	se I	Phase II		All	
Activity	Yes	%	Yes	%	Yes	%
Review construction site plans for post	189	76%	142	64%	331	70%
construction stormwater water quality						
requirements						
Review construction site plans for post	170	68%	151	68%	321	68%
construction stormwater water quantity						
requirements						
Tracking/inventory of sites and/or post	166	67%	97	44%	263	56%
construction stormwater management controls						
on those sites						
Inspections of post construction stormwater	186	75%	146	66%	332	70%
management controls						
Maintenance of post construction stormwater	139	56%	94	42%	233	49%
management controls						
Training of field inspections staff	178	71%	95	43%	273	58%
Contractor training	79	32%	43	19%	122	26%
Other ^a	48	19%	28	13%	76	16%
None	18	7%	28	13%	46	10%

a. Other responses: Adopting an ordinance, developing and revising guidance (manuals, templates and tools), reviewing and updating standards, supporting research on post construction BMPs and monitoring, training (engineers and designers, contractors, city inspectors/plan reviewers), demonstrating rain garden projects, requiring a water quality management plan prior to permit issuance, issuing drainage agreements, issuing final certificates of occupancy and bond releases, responding to complaints, conducting inspections and storm event spot checks, requiring annual certification of operation and maintenance or a maintenance covenant, maintenance verification (maintenance performed by permittee and property owner charged if they fail to comply), post-construction monitoring, collecting detailed post-construction data, and conducting watershed improvement projects. Several respondents indicated that other agencies are responsible for implementing the post-construction program. Several respondents said they only inspect/maintain public post-construction controls. A few respondents indicated that no significant construction activities occurred.

Question A-30 asked what is the threshold that a development project requires site plan review for stormwater quality or quantity control structures? Indicate the threshold for both new development and redevelopment projects.

Table A-30a. New development project threshold types

	Phase I		Phase II		A	.11
New Development Threshold	Yes	%	Yes	%	Yes	%
Type of facility usage	56	22%	27	12%	83	18%
Specific location/watershed priority	53	21%	26	12%	79	17%
Type of activity (i.e., fueling, storage of	33	13%	19	9%	52	11%
materials)						
New MS4 system connections	35	14%	16	7%	51	11%
Other ^a	94	38%	50	23%	144	31%
Unknown	10	4%	17	8%	27	6%
Not applicable	24	10%	27	12%	51	11%

a. Other responses: if a site plan is required; based on proximity to waterbodies or sensitive areas (e.g., within 200 feet of state waters, within 100 feet of wetlands/waterbodies); based on proximity to potable wells; sites that are deemed sensitive or

have a potential impact to the health, safety, and welfare of people and/or the environment; based on installation of utilities or modification of a pipe or ditch; creating a certain number of parking spaces (e.g., 3, 10); presence of steep slopes or erosive soil; particular land uses (e.g., auto repair facilities, restaurants, parking lots, roads, apartment complexes, structures other than single- or two-family); different thresholds depending on land use; new or replaced impervious area or disturbed area; or based on fill within the floodplain. Many respondents indicated that all development was included. Several said this was not applicable to their program.

Table A-30b. New development project thresholds

		New Development Threshold						
MS4 Type	Statistic	Square Feet	Acres	Cubic Feet				
Phase I	Min	0	0.01	1				
	Median	5,000	1	1,175				
	Max	43,600	1	43,560				
	Count	106	70	16				
Phase II	Min	0	0.00001	1				
	Median	5,000	1	2,025				
	Max	73,560	5,000a	43,560				
	Count	100	115	12				
All	Min	0	0.00001	1				
	Median	5,000	1	1,350				
	Max	73,560	5,000a	43,560				
	Count	206	185	28				

a. This value was probably reported in error because they also responded that the threshold was 1,000 ft²

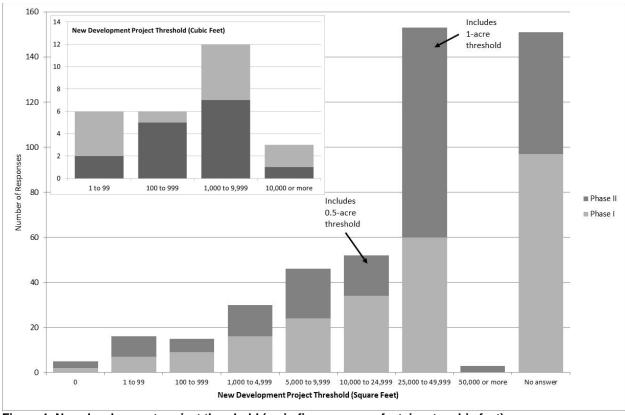


Figure 1. New development project threshold (main figure: square feet, inset: cubic feet)

Table A-30c Redevelopment projects threshold types

	Phase I		Phase II		A	ll
Redevelopment Threshold	Yes	%	Yes	%	Yes	%
The threshold that requires site plan review for	173	69%	168	76%	341	72%
stormwater control structures is identical for						
redevelopment and new development						
Type of facility usage	21	8%	5	2%	26	6%
Specify location/watershed priority	10	4%	2	1%	12	3%
Type of activity (i.e., fueling, storage of	12	5%	5	2%	17	4%
materials						
New MS4 system connections	6	2%	2	1%	8	2%
Other ^a	48	19%	15	7%	63	13%
Unknown	5	2%	12	5%	17	4%
Not applicable	19	8%	26	12%	45	10%

a. Other responses: Based on the dollar amount of improvements (e.g., \$5,000, \$100,000, 50% or greater than existing value); based on the type of development (e.g., anything other than a single-family residential property); based on the amount or percent of disturbed area, impervious area, additional building space, parking additions (e.g., 5,000, 10,000 square feet); if native vegetation is converted to a landscaped area; based on the size of the site; if there is new infrastructure, if stormwater system modifications are necessary, or if a 12-inch or larger pipe or ditch is modified; if there is an increase in runoff; or if site plan approval is required. Many said that the requirements were the same as new development or that all new developments are included. One respondent had no requirement.

Question A-31 asked for post construction stormwater controls located on public property within your MS4 service area do you track, inspect and/or maintain these controls? Check all that apply.

Table A-31. Post construction tracking on public property

	Pha	Phase I		Phase II		11
Activity	Yes	%	Yes	%	Yes	%
MS4 operators track post construction controls on public property	198	80%	118	53%	316	67%
MS4 operator inspects post construction controls on public property	218	88%	153	69%	371	79%
MS4 operator maintains post construction controls on public property	208	84%	152	68%	360	76%
Other	39	16%	25	11%	64	14%
No, stormwater controls are not tracked, inspected or maintained	14	6%	31	14%	45	10%

Question A-32 asked for post construction stormwater controls located on private property within your MS4 service area do you track, inspect and/or maintain these controls? Check all that apply.

Table A-32. Post construction tracking on private property

	Phase I		Phase II		A	ll
Activity	Yes	%	Yes	%	Yes	%
MS4 operators track post construction controls	151	61%	90	41%	241	51%
on private property						
MS4 operator inspects post construction	127	51%	107	48%	234	50%
controls on private property						
MS4 operator maintains post construction	18	7%	12	5%	30	6%
controls on private property						
Other ^a	67	27%	41	18%	108	23%
No	58	23%	77	35%	135	29%

a. Other responses: Several respondents indicated that tracking, inspection, and maintenance will commence soon. Many indicated that some facilities on private property were maintained by the municipality, but not all. In cases where the municipality was responsible, it was the result of an easement or maintenance agreement. Other respondents stated that private property owners were responsible for maintaining their facilities. Some exceptions that were cited were based on the type of facility (e.g., swales were the responsibility of residents, regional facilities were the responsibility of the municipality). Many respondents indicated that they had the authority to inspect/maintain facilities if the private property owner was not performing these services. Some respondents said they required periodic (e.g., annual, every 5 years) certification of maintenance, either self-certification or third-party certification. Regarding inspections, many respondents indicated that they were complaint-driven, though a few cited proactive/regularly scheduled inspections. Some respondents said they did not have the authority to conduct inspections and maintenance.

Question A-33 asked does your jurisdiction have an ordinance or other regulatory mechanism that gives you authority to inspect, operate and maintain stormwater control practices on privately-owned properties? Check all that apply.

Table A-33. Inspection authorities for private property

	Phase I		Phas	se II	A	ll
Activity	Yes	%	Yes	%	Yes	%
Yes, MS4 operator has authority to inspect	184	74%	136	61%	320	68%
controls on private property						
Yes, MS4 operator has authority to operate	56	22%	43	19%	99	21%
and maintain controls on private property						
Yes, MS4 operator has authority to compel	182	73%	143	64%	325	69%
private owners to operate and maintain						
controls on their private property						
No, specify specific barriers or local issues	26	10%	29	13%	55	12%
prevent you from having such authority?						
Not applicable	20	8%	28	13%	48	10%

Question A-34 asked is your basis for inspection of post construction stormwater controls their location on public or private property or their specific type of control (do not include inspections of construction sites)? Check all that apply.

Table A-34. Post construction inspection basis

	Phase I		Phase II		A	ll
Activity	Yes	%	Yes	%	Yes	%
MS4 operator inspects controls on public	223	90%	169	76%	392	83%
property						
MS4 operator inspects controls on private	118	47%	110	50%	228	48%
residential property (may include those owned						
by a homeowner association)						
MS4 operator inspects controls on private	128	51%	111	50%	239	51%
commercial property						
MS4 operator inspects specific types of	38	15%	25	11%	63	13%
controls						
Other ^a	48	19%	22	10%	70	15%
Not applicable	14	6%	31	14%	45	10%

a. Other responses: Many respondents said their inspections were complaint-driven. Several said this was not applicable to their program. Where applicable, inspections were prioritized if BMP maintenance agreements were in place, annual maintenance records aren't provided, controls receive runoff from the public system, or on the basis of the compliance history of the facility, risk (e.g., land use), BMP type, or threat to water quality. Inspections occurred during or at completion of construction or during emergency response. Several respondents indicated that third-party inspection was required.

Question A-35 asked does your jurisdiction have legal authority to require private property owners to maintain post construction stormwater controls on their property?

Table A-35. Post construction maintenance authority

	Phase I		Pha	se II	All	
Response	Yes	%	Yes	%	Yes	%
Yes	205	82%	156	70%	361	77%
No	26	10%	36	16%	62	13%
Don't know	4	2%	15	7%	19	4%
Not applicable	14	6%	9	4%	23	5%
No answer	0	0%	6	3%	6	1%

Question A-36 asked does your jurisdiction require private property owners to maintain post construction stormwater controls on their property through an ordinance or other regulatory mechanism?

Table A-36. Post construction maintenance ordinances and regulations

	Phase I		Pha	se II	All	
Response	Yes	%	Yes	%	Yes	%
Yes	206	83%	165	74%	371	79%
No	24	10%	38	17%	62	13%
Not applicable	17	7%	15	7%	32	7%
No answer	2	1%	4	2%	6	1%

Question A-37 asked what type of private property owners must maintain post construction stormwater controls on their property? Check all that apply.

Table A-37. Property owners required to maintain post construction controls

	Phase I		Phase II		A	ll
Activity	Yes	%	Yes	%	Yes	%
Private homeowners	151	61%	129	58%	280	59%
Homeowner associations	211	85%	155	70%	366	78%
Homebuilders	125	50%	107	48%	232	49%
Commercial entities	219	88%	165	74%	384	82%
Private institutions	205	82%	146	66%	351	75%
Other ^a	46	18%	32	14%	78	17%
Not applicable	19	8%	29	13%	48	10%

a. Other responses: All controls regardless of type; controls on projects disturbing a certain amount of land (e.g., 1 acre); hillside development; projects subject to state/local permits, stormwater requirements, or ordinances; any controls not publicly maintained or governed by a maintenance agreement that requires it; any controls used to meet detention requirements; controls owned by builders, banks who take ownership of the property, commercial/business group associations, developers, educational institutions, food service entities, homeowner/condo associations, industrial facilities, municipal utility districts, non-profit organizations, public entities, and sewer and water authorities; private homeowners where onsite retention was required in the past. Example exclusions: controls on federal properties and single-family homes. One respondent indicated that maintenance requirements were determined on a case-by-case basis based on development process manual. Another indicated that they did not have an ordinance requiring private property owners to maintain post-construction controls on their property.

Question A-38 asked does your jurisdiction have legal authority to require private property owners (for example, homeowner associations) to include stormwater maintenance obligations or rights of inspection in recorded covenants, deeds, conditions and restrictions or equivalent documents that are binding on privately owned properties?

Table A-38. Maintenance requirements in property documents

	Pha	Phase I		se II	All	
Activity	Yes	%	Yes	%	Yes	%
Yes	189	76%	131	59%	320	68%
No	26	10%	44	20%	70	15%
Not applicable	19	8%	13	6%	32	7%
Don't know	15	6%	28	13%	43	9%
No answer	0	0%	6	3%	6	1%

NEW DEVELOPMENT AND REDEVELOPMENT

Question A-39 asked do you consider the following part of new development or redevelopment?

- Infill projects on existing undeveloped parcels
- Projects involving the conversion from one land use type to another, with no change in impervious area (e.g., a commercial property is converted into townhouses)
- Development extensions that add imperviousness onto previously undeveloped land, but are part of the same plot/parcel (e.g., a commercial parking lot is extended into an adjoining forested area)
- Road widening projects (e.g., adding a lane)
- Replacement of impervious surfaces (road resurfacing, sidewalk replacement, etc)

Table A-39. New development versus redevelopment

	Phas	se I	Pha	se II	Al	1					
Type of Development	Yes	%	Yes	%	Yes	%					
Infill projects on existing	ng undeveloped	parcels									
New development	221	89%	179	81%	400	85%					
Redevelopment	8	3%	4	2%	12	3%					
Neither	8	3%	23	10%	31	7%					
No answer	12	5%	16	7%	28	6%					
Projects involving the c				r, with no chan	ge in impervio	us area (e.g.,					
a commercial property											
New development	36	14%	38	17%	74	16%					
Redevelopment	159	64%	127	57%	286	61%					
Neither	42	17%	41	18%	83	18%					
No answer	12	5%	16	7%	28	6%					
	Development extensions that add imperviousness onto previously undeveloped land, but are part of the same										
plot/parcel (e.g., a com			•								
New development	123	49%	149	67%	272	58%					
Redevelopment	100	40%	35	16%	135	29%					
Neither	14	6%	21	9%	35	7%					
No answer	12	5%	17	8%	29	6%					
Road widening projects	s (e.g., adding a	lane)									
New development	94	38%	104	47%	198	42%					
Redevelopment	81	33%	55	25%	136	29%					
Neither	61	24%	46	21%	107	23%					
No answer	13	5%	17	8%	30	6%					
Replacement of imperv	ious surfaces (r	road resurfacii	ng, sidewalk re	placement, etc	.)						
New development	10	4%	15	7%	25	5%					
Redevelopment	88	35%	85	38%	173	37%					
Neither	139	56%	105	47%	244	52%					
No answer	12	5%	17	8%	29	6%					
Other											
New development	8	3%	2	1%	10	2%					
Redevelopment	7	3%	3	1%	10	2%					
Neither	22	9%	31	14%	53	11%					
No answer	212	85%	186	84%	398	85%					

Question A-40 asked what is the size threshold for coverage of construction sites under your erosion control/construction site management program?

Table A-40. Size threshold for construction sites

MS4 Type	Statistic	Area	Volume
Phase I	Minimum	1 square foot	1 cubic foot
	Median	1 acre	5 cubic feet
	Maximum	1 acre	5,400 cubic feet
	Count	165	5
Phase II	Minimum	1 square foot	1,350 cubic feet
	Median	1 acre	2,430 cubic feet
	Maximum	40,180 acres	2,700 cubic feet
	Count	163	3
All	Minimum	1 square foot	1 cubic foot
	Median	1 acre	1,350 cubic foot
	Maximum	40,180 acres	5,400 cubic foot
	Count	328	8

Question A-41 asked how many construction projects (at the size threshold described in Question A-40) were initiated in your MS4 in the last 5 years? Estimate the number of construction projects that are new development and redevelopment.

Table A-41a. Number of construction projects

			New Projects					Redevelopment Projects				
MS4 Type	Statistic	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	
Phase I	Minimum	0	0	0	0	0	0	0	0	0	0	
	Median	62	51	56.5	40	36	4	3	5	4	3	
	Maximum	50,778	47,476	42,069	33,694	36,325	1,854	1,382	1,098	1,000	1,000	
	Count	187	193	196	195	195	57	59	58	55	55	
Phase II	Minimum	0	0	0	0	0	0	0	0	0	0	
	Median	5	5	6	4.5	4	0	0	0	0	0	
	Maximum	4,000	3,100	2,429	2,472	2,219	487	436	515	485	431	
	Count	140	144	149	154	155	69	71	72	74	75	
All	Minimum	0	0	0	0	0	0	0	0	0	0	
	Median	22	23	21	16	12	0	0	1	1	1	
	Maximum	50,778	47,476	42,069	33,694	36,325	1,854	1,382	1,098	1,000	1,000	
	Count	327	337	345	349	350	126	130	130	129	130	

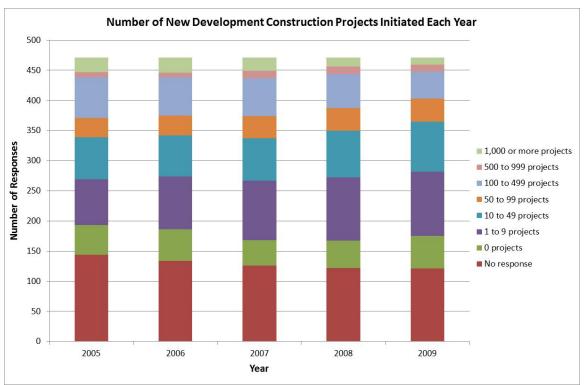


Figure 2. New development projects initiated annually from 2005 to 2009

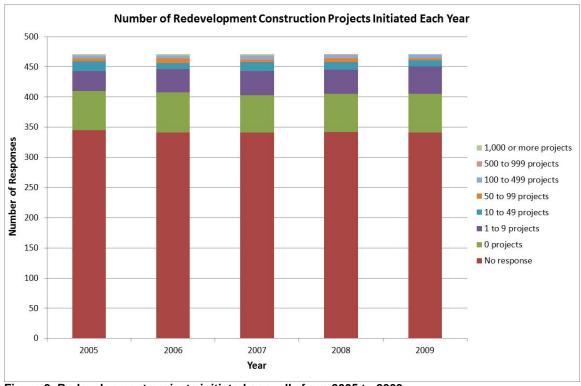


Figure 3. Redevelopment projects initiated annually from 2005 to 2009

Table A-41b. Tracking of construction projects

	Phase I		Phase II		All	
Activity	Yes	%	Yes	%	Yes	%
My MS4 program does not track construction	24	10%	42	19%	66	14%
projects						
My MS4 program does not distinguish	163	65%	99	45%	262	56%
between new development and redevelopment						
in our tracking of construction projects						

Question A-42 asked how many acres of new development have occurred in the last 5 years in your jurisdiction?

Table A-42. Acres of new development in the last five years

			Acres of New Development									
MS4 Type	Statistic	2005	2006	2007	2008	2009	Unkı	nown				
Phase I	Minimum	0	0	0	0	0	163	65%				
	Median	123	99.5	91.855	40	24						
	Maximum	362,826	485,979	234,614	410,203	3,905,910						
	Count	69	74	76	78	79						
Phase II	Minimum	0	0	0	0	0	111	50%				
	Median	15	12	19.9	9.435	7.62						
	Maximum	980	1030	900	700	500						
	Count	89	91	93	94	97						
All	Minimum	0	0	0	0	0	274	58%				
	Median	24.61	25	28.7	15.6	11.53						
	Maximum	362,826	485,979	234,614	410,203	3,905,910						
	Count	158	165	169	172	176						

Note: Very few of the survey respondents answered this question, so the quality of the statistical results is questionable.

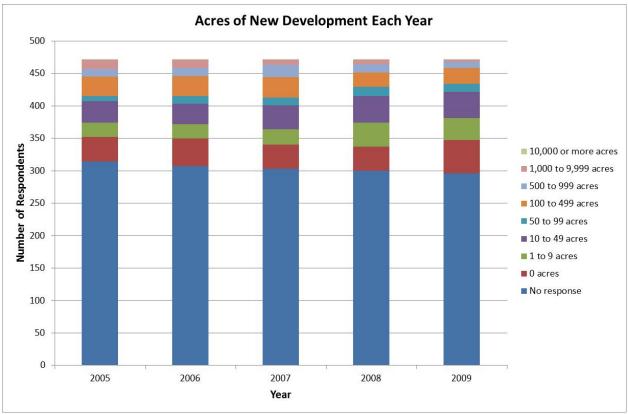


Figure 4. Acres of new development annually from 2005 to 2009

Question A-43 asked how many acres of redevelopment have occurred in the last 5 years in your jurisdiction?

Table A-43. Acres of redevelopment in the last five years

				Acres of Red	levelopment			
MS4 Type	Statistic	2005	2006	2007	2008	2009	Unkı	nown
Phase I	Minimum	0	0	0	0	0	186	75%
	Median	8.2	5.5	11	3.5	3.4		
	Maximum	280	474	351	329	345		
	Count	45	45	47	48	47		
Phase II	Minimum	0	0	0	0	0	135	61%
	Median	0	0	0	0	0		
	Maximum	292	251	294	258	256		
	Count	67	68	68	72	75		
All	Minimum	0	0	0	0	0	321	68%
	Median	1	1	2	1.03	1		
	Maximum	292	474	351	329	345		
	Count	112	113	115	120	122		

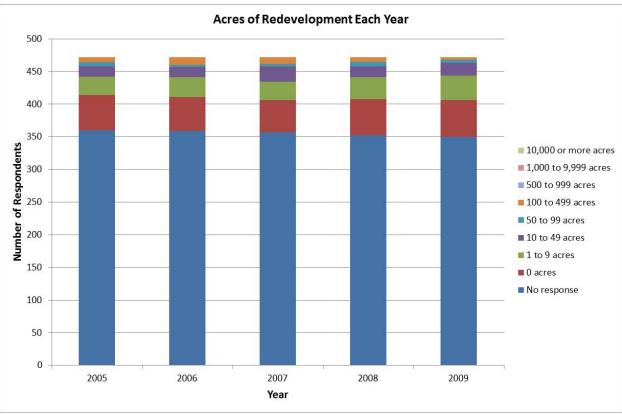


Figure 5. Acres of redevelopment annually from 2005 to 2009

Performance Standard (Questions A-44 to A-59)

Question A-44 asked are new development or redevelopment activities in your MS4 service area subject to a post construction standard that includes either numeric or specific stormwater performance standards or design criteria for stormwater control?

Table A-44. Development activities subject to post construction standards

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
Yes	199	80%	143	64%	342	73%
No	47	19%	71	32%	118	25%
No Answer	3	1%	8	4%	11	2%

Question A-45 asked who determined your MS4's stormwater performance standard or design criteria for post construction controls for new or redevelopment activities? Check all that apply.

Table A-45. Responsibility for post construction performance standards

	Pha	ise I	Phase II		A	11
Responsible Party	Yes	%	Yes	%	Yes	%
The state (or EPA if they are the NPDES	107	43%	63	28%	170	36%
permitting authority in your state) enacted						
these requirements that are implemented						
through the MS4 permit						
The state enacted these requirements that are	36	14%	41	18%	77	16%
implemented through the state construction						
stormwater permit						
The state enacted these requirements that are	38	15%	25	11%	63	13%
implemented through the state stormwater						
permit						
The county enacted these regulations that the	37	15%	26	12%	63	13%
MS4 is required to implement						
The requirement was enacted by a local	93	37%	67	30%	160	34%
governmental body						
Other	23	9%	15	7%	38	8%

Question A-46 asked is your post construction standard for redevelopment projects different than for new development projects?

Table A-46. Standard different for redevelopment vs. new development

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
Yes	43	17%	33	15%	76	16%
No	162	65%	122	55%	284	60%
No answer	44	18%	67	30%	111	24%

Question A-47 asked for (**new**) **development** projects, what is the threshold to which the post construction stormwater performance standards or design criteria apply?

Table A-47a. New development project threshold types for performance standards

	Phase I		Pha	se II	All	
New Development Project Threshold Type	Yes	%	Yes	%	Yes	%
Type of facility usage	54	22%	19	9%	73	15%
Specify location/watershed priority	36	14%	19	9%	55	12%
Type of activity (i.e., fueling, storage of	30	12%	16	7%	46	10%
materials)						
New MS4 system connections	9	4%	9	4%	18	4%
Other ^a	73	29%	39	18%	112	24%
Unknown	3	1%	15	7%	18	4%
Not applicable	13	5%	9	4%	22	5%

a. Other responses: all development; high-density development (e.g., > 24% BUA); development over a certain size threshold (e.g., 1 acre, 100,000 ft², 10 housing units), impervious area (e.g., 10,000 ft², 35,000 ft²), disturbed area, or amount of native vegetation converted; small sites where the site is substantially converted from pervious to impervious surface; hillside developments and projects with steep slopes; historic properties; projects in which utilities are installed; projects with a minimum average daily traffic (e.g., 100 vehicles per 1,000 ft² of gross building area); projects subject to state/local permits, stormwater requirements, or ordinances; dependent on land use/business type (e.g., automotive repair, retail gas, restaurants, parking lots, streets/roads, subdivisions); dependent on risk to water quality; discharging to streams above drinking water plant; based on proximity to a catch basin or waterbody (e.g., 200 ft to ocean, 100 ft to wetland); dependent on the receiving water; in areas deemed to be sensitive; based on project type (e.g., public projects, subdivisions, road construction, parking lot construction, office complexes, municipal facilities); projects that would alter the hydrology from pre to post development conditions. One respondent had threshold based on a sliding scale of impervious area (e.g., 5% impervious for large sites to 40% impervious for small sites). Some respondents exclude single-family homes. Several respondents had different thresholds for different requirements/standards.

Table A-47b. New development project thresholds for performance standards

	Pha	se I	Phas	se II	Al	l
Thresholds for Performance Standards	Yes	%	Yes	%	Yes	%
1 square foot of disturbed area	3	1%	5	2%	8	2%
100 square feet of disturbed area	1	0%	0	0%	1	0%
400 square feet of disturbed area	0	0%	1	0%	1	0%
500 square feet of disturbed area	2	1%	2	1%	4	1%
800 square feet of disturbed area	1	0%	0	0%	1	0%
1,000 square feet of disturbed area	4	2%	1	0%	5	1%
1,500 square feet of disturbed area	1	0%	0	0%	1	0%
2,000 square feet of disturbed area	1	0%	0	0%	1	0%
2,500 square feet of disturbed area	6	2%	5	2%	11	2%
3,000 square feet of disturbed area	0	0%	1	0%	1	0%
4,000 square feet of disturbed area	1	0%	0	0%	1	0%
5,000 square feet of disturbed area	19	8%	12	5%	31	7%
6,500 square feet of disturbed area	0	0%	1	0%	1	0%
7,000 square feet of disturbed area	0	0%	2	1%	2	0%
10,000 square feet of disturbed area	10	4%	3	1%	13	3%
10,890 square feet of disturbed area	0	0%	1	0%	1	0%
15,000 square feet of disturbed area	1	0%	0	0%	1	0%
17,424 square feet of disturbed area	0	0%	1	0%	1	0%
20,000 square feet of disturbed area	1	0%	0	0%	1	0%
21,780 square feet of disturbed area	0	0%	1	0%	1	0%
35,000 square feet of disturbed area	1	0%	0	0%	1	0%
43,560 square feet of disturbed area	8	3%	22	10%	30	6%
0.0001 acre of disturbed area	0	0%	1	0%	1	0%
0.0184 acre of disturbed area	1	0%	0	0%	1	0%

	Pha	se I	Phas	se II	Al	
Thresholds for Performance Standards	Yes	%	Yes	%	Yes	%
0.11 acre of disturbed area	1	0%	1	0%	2	0%
0.2 acre of disturbed area	1	0%	0	0%	1	0%
0.23 acre of disturbed area	1	0%	0	0%	1	0%
0.25 acre of disturbed area	1	0%	0	0%	1	0%
0.4 acre of disturbed area	0	0%	1	0%	1	0%
0.5 acre of disturbed area	5	2%	4	2%	9	2%
1 acre of disturbed area	45	18%	67	30%	112	24%
5 acres of disturbed area	0	0%	1	0%	1	0%
1 cubic foot of disturbed land	0	0%	3	1%	3	1%
1,700 cubic foot of disturbed land	1	0%	0	0%	1	0%
2,700 cubic feet of disturbed land	1	0%	2	1%	3	1%
5,400 cubic feet of disturbed land	1	0%	0	0%	1	0%
43,560 cubic feet of disturbed land	0	0%	1	0%	1	0%
1 square foot of impervious area	0	0%	1	0%	1	0%
100 square feet of impervious area	0	0%	1	0%	1	0%
350 square feet of impervious area	0	0%	1	0%	1	0%
400 square feet of impervious area	1	0%	0	0%	1	0%
500 square feet of impervious area	2	1%	0	0%	2	0%
576 square feet of impervious area	0	0%	1	0%	1	0%
1000 square feet of impervious area	0	0%	5	2%	5	1%
1500 square feet of impervious area	0	0%	1	0%	1	0%
2,000 square feet of impervious area	0	0%	3	1%	3	1%
2,500 square feet of impervious area	1	0%	1	0%	2	0%
5,000 square feet of impervious area	11	4%	2	1%	13	3%
10,000 square feet of impervious area	21	8%	2	1%	23	5%
0.25 acre net increase of impervious area	1	0%	0	0%	1	0%
20,000 square feet of impervious area	3	1%	2	1%	5	1%
25,000 square feet of impervious area	0	0%	1	0%	1	0%
1 acre of impervious area	0	0%	1	0%	1	0%
2 acres of impervious area	1	0%	0	0%	1	0%
Any additional of impervious area	1	0%	0	0%	1	0%

Note: 22 respondents provided an impervious area threshold that did not include units (0.16, 0.25, 0.5 [2], 1 [2], 2, 800, 1,000, 2,000, 2,500 [3], 5,000 [3], 10,000 [6]).

Question A-48 asked the respondent to indicate which specific or numeric stormwater performance standards or design criteria requirements apply to **(new) development** projects. Provide your standard in the "specify" blank. Check all that apply.

Table A-48. Stormwater performance standards or design criteria applicable to new development

	Phase I Phase II		All			
Standard/Criterion	Yes	%	Yes	%	Yes	%
Post-development peak runoff/discharge rate	141	57%	114	51%	255	54%
must match pre-development peak						
runoff/discharge rate for a specified storm						
return interval or intervals						
1-year storm	2	1%	4	2%	6	1%
2-year storm	9	4%	9	4%	18	4%
5-year storm	2	1%	4	2%	6	1%
10-year storm	18	7%	24	11%	42	9%
25-year storm	21	8%	11	5%	32	7%
100-year storm	20	8%	30	14%	50	11%

Regulated MS4 ICR Survey Summary

	Phas	e I	Phase	e II	All	
Standard/Criterion	Yes	%	Yes	%	Yes	%
Other	98	39%	57	26%	155	33%
No answer	79	32%	83	37%	162	34%
Detention of a specified storm depth or	63	25%	34	15%	97	21%
volume (such as 0.5 inch per acre or 1 inch						
per impervious acre)						
Detention of a specified storm volume (such	28	11%	16	7%	44	9%
as 1,800 cubic feet per acre or 3,600 cubic feet						
per impervious acre)						
Detention of a specified percentile storm event	36	14%	25	11%	61	13%
(such as the 80th percentile storm)						
Retention of a specified storm depth or	45	18%	26	12%	71	15%
volume (such as 0.5 inch per acre or 1 inch						
per impervious acre)						
Retention of a specified storm volume (such	21	8%	5	2%	26	6%
as 1,800 cubic feet per acre or 3,600 cubic feet						
per impervious acre)						
Retention of a specified percentile storm event	32	13%	16	7%	48	10%
(such as the 80th percentile storm)						
Pollutant reduction requirement (for example,	71	29%	56	25%	127	27%
stormwater control practices must be installed						
to remove 80% of the post-construction TSS						
loading and 40% of the post-construction						
nitrogen loading)						
Channel protection measures/	104	42%	46	21%	150	32%
hydromodification controls (such as a						
maximum allowable discharge velocity or						
other metric)						
Infiltration/groundwater recharge requirement	39	16%	37	17%	76	16%
(for example, maintain predevelopment						
groundwater recharge levels or infiltrate the						
first 0.5 inch of runoff)						
Limits for effluent concentrations of specific	12	5%	6	3%	18	4%
pollutants measured at the stormwater control		- , -		- , -		
Limits for effluent concentrations of specific	10	4%	6	3%	16	3%
pollutants in receiving waters						
Requirements for control of temperature	7	3%	4	2%	11	2%
Flood control requirements other than the	61	24%	19	9%	80	17%
peak discharge rate control and on-site	01	2.70		7,0		1,,0
detention/retention requirements specified						
above						
Stream buffer requirements (for example, a 50	69	28%	52	23%	121	26%
foot vegetated buffer must be	0)	2070	52	2370	121	2070
maintained/implemented adjacent to waters of						
the state)						
Limits on the maximum percent	37	15%	31	14%	68	14%
imperviousness for the site, or maximum	37	1370	51	11/0		11/0
effective (commonly called directly						
connected) impervious surface or other limits						
on impervious surfaces						
Other standards not identified above	45	18%	22	10%	67	14%
omer sumumus not identified above	+5	10/0	44	10/0	U/	1 + /0

Question A-49 asked to which type of (new) development do your stormwater performance or design standards (as described in Question A-48) apply? Check all that apply.

Table A-49. Stormwater standards versus development type

	Phase I		Phase II		All	
Type of Development	Yes	%	Yes	%	Yes	%
Requirements are the same for all types of	153	61%	134	60%	287	61%
new development						
Residential	28	11%	6	3%	34	7%
Commercial	31	12%	10	5%	41	9%
Industrial	26	10%	10	5%	36	8%
Institutional	21	8%	10	5%	31	7%
Mixed use	28	11%	6	3%	34	7%
Other	33	13%	12	5%	45	10%

Question A-50 asked, for **redevelopment** projects, what is the threshold to which the post construction stormwater performance standards or design criteria apply?

Table A-50a. Redevelopment project threshold types for performance standards

	Pha	Phase I		Phase II		ll
Redevelopment Threshold Type	Count	%	Count	%	Count	%
Type of Facility Usage	21	8%	6	3%	27	6%
Specific Location	11	4%	3	1%	14	3%
Type of Activity	12	5%	3	1%	15	3%
New MS4 Connections	2	1%	3	1%	5	1%
Other	34	14%	16	7%	50	11%
Unknown	4	2%	8	4%	12	3%
N/A	26	10%	26	12%	52	11%

Table A-50b. Redevelopment project thresholds for performance standards

	Pha	hase I		se II	All	
Thresholds for Performance Standards	Yes	%	Yes	%	Yes	%
1 square foot of disturbed area	0	0%	1	0%	1	0%
400 square feet of disturbed area	0	0%	1	0%	1	0%
500 square feet of disturbed area	0	0%	1	0%	1	0%
1,000 square feet of disturbed area	2	1%	0	0%	2	0%
2,500 square feet of disturbed area	8	3%	2	1%	10	2%
3,000 square feet of disturbed area	0	0%	1	0%	1	0%
4,000 square feet of disturbed area	2	1%	0	0%	2	0%
5,000 square feet of disturbed area	19	8%	3	1%	22	5%
10,000 square feet of disturbed area	1	0%	1	0%	2	0%
15,000 square feet of disturbed area	1	0%	0	0%	1	0%
21,780 square feet of disturbed area	0	0%	1	0%	1	0%
35,000 square feet of disturbed area	1	0%	0	0%	1	0%
43,560 square feet of disturbed area	1	0%	8	4%	9	2%
0.11 acre of disturbed area	3	1%	1	0%	4	1%
0.5 acre of disturbed area	1	0%	3	1%	4	1%
1 acre of disturbed area	13	5%	26	12%	39	8%
43,560 cubic feet of disturbed land	0	0%	1	0%	1	0%
100 square feet of impervious area	0	0%	1	0%	1	0%
1,500 square feet of impervious area	0	0%	1	0%	1	0%

	Phase I		Phase II		All	
Thresholds for Performance Standards	Yes	%	Yes	%	Yes	%
5,000 square feet of impervious area	4	2%	1	0%	5	1%
10,000 square feet of impervious area	9	4%	0	0%	9	2%
20,000 square feet of impervious area	0	0%	1	0%	1	0%
0.5 acre of impervious area	2	1%	0	0%	2	0%
2 acres of impervious area	1	0%	0	0%	1	0%

Note: Nine respondents did not include units (0.1, 0.25, 1,000, 2,000, 5,000 [2], 10,000 [2], 15,000)

Question A-51 asked the respondent to indicate which specific or numeric stormwater performance standards or design criteria requirements apply to **redevelopment** projects. Provide your standard in the "specify" blank. Check all that apply.

Table A-51. Stormwater performance standards or design criteria applicable to redevelopment

	Phas	se I	Phas	Phase II		l
Standard/Criterion	Yes	%	Yes	%	Yes	%
Post-development peak runoff/discharge rate	42	17%	36	16%	78	17%
must match pre-development peak						
runoff/discharge rate for a specified storm						
return interval or intervals						
1-year storm	1	0%	4	2%	5	1%
2-year storm	3	1%	3	1%	6	1%
5-year storm	2	1%	4	2%	6	1%
10-year storm	8	3%	12	5%	20	4%
25-year storm	9	4%	3	1%	12	3%
100-year storm	5	2%	8	4%	13	3%
Other	48	19%	18	8%	66	14%
No answer	173	69%	170	77%	343	73%
Detention of a specified storm depth or	11	4%	11	5%	22	5%
volume (such as 0.5 inch per acre or 1 inch						
per impervious acre)						
Detention of a specified storm volume (such	6	2%	3	1%	9	2%
as 1,800 cubic feet per acre or 3,600 cubic feet						
per impervious acre)						
Detention of a specified percentile storm event	13	5%	10	5%	23	5%
(such as the 80th percentile storm)						
Retention of a specified storm depth or	15	6%	9	4%	24	5%
volume (such as 0.5 inch per acre or 1 inch						
per impervious acre)						
Retention of a specified storm volume (such	6	2%	2	1%	8	2%
as 1,800 cubic feet per acre or 3,600 cubic feet						
per impervious acre)						
Retention of a specified percentile storm event	8	3%	5	2%	13	3%
(such as the 80th percentile storm), specify:						
Pollutant reduction requirement (for example,	31	12%	19	9%	50	11%
stormwater control practices must be installed						
to remove 80% of the post-construction TSS						
loading and 40% of the post-construction						
nitrogen loading)						
Channel protection measures/	29	12%	15	7%	44	9%
hydromodification controls (such as a						
maximum allowable discharge velocity or						
other metric)						

	Phas	Phase I		e II	All	
Standard/Criterion	Yes	%	Yes	%	Yes	%
Infiltration/groundwater recharge requirement	13	5%	6	3%	19	4%
(for example, maintain predevelopment						
groundwater recharge levels or infiltrate the						
first 0.5 inch of runoff)						
Limits for effluent concentrations of specific	4	2%	0	0%	4	1%
pollutants measured at the stormwater control						
Limits for effluent concentrations of specific	3	1%	3	1%	6	1%
pollutants in receiving waters						
Requirements for control of temperature	6	2%	0	0%	6	1%
Flood control requirements other than the	18	7%	6	3%	24	5%
peak discharge rate control and on-site						
detention/retention requirements specified						
above						
Stream buffer requirements (for example, a 50	23	9%	16	7%	39	8%
foot vegetated buffer must be						
maintained/implemented adjacent to waters of						
the state)						
Limits on the maximum percent	12	5%	7	3%	19	4%
imperviousness for the site, or maximum						
effective (commonly called directly						
connected) impervious surface or other limits						
on impervious surfaces						
Other standards not identified above	22	9%	12	5%	34	7%

Question A-52 asked to which type of redevelopment does your stormwater performance and/or design standards (described in Question A-51) apply?

Table A-52. Stormwater standards versus redevelopment type

	Phase I		Phase II		All	
Type of Redevelopment	Yes	%	Yes	%	Yes	%
Requirements are the same for all types of	70	28%	58	26%	128	27%
new development						
Residential	9	4%	3	1%	12	3%
Commercial	14	6%	6	3%	20	4%
Industrial	14	6%	5	2%	19	4%
Institutional	14	6%	5	2%	19	4%
Mixed use	13	5%	4	2%	17	4%
Other	23	9%	8	4%	31	7%

Question A-53 asked what is the enforcement mechanism to assure that post construction program requirements are met? Check all that apply.

Table A-53. Post construction enforcement mechanism

	Phase I		Phase II		All	
Enforcement Mechanism	Yes	%	Yes	%	Yes	%
Site inspection during construction	185	74%	132	59%	317	67%
Site inspection post development	153	61%	116	52%	269	57%
Site plan review/approval/acceptance	196	79%	140	63%	336	71%
Review of self-reporting/self-certification	63	25%	19	9%	82	17%
database						
Other	55	22%	20	9%	75	16%

Question A-54 asked: to comply with the performance standard or design criteria specified in Question A-48 and/or A-51, is the use of specific stormwater controls measures, or choosing from a menu of such controls, a requirement?

Table A-54. Options for compliance

	Phase I		Phase II		All	
Compliance Options	Yes	%	Yes	%	Yes	%
Yes, specific controls are specifies to meet the standard	25	10%	28	13%	53	11%
Yes, choosing specific controls from a menu is specified to meet the standard	88	35%	48	22%	136	29%
No, specific controls are not required to meet the standard	62	25%	59	27%	121	26%
Other	44	18%	17	8%	61	13%

Question A-55 asked: is the standard (performance standard or design standard), specified in Question A-48 and/or A-51, required to be met through mandatory onsite stormwater management or is a combination of on-site and regional/community/ neighborhood scale management allowed (do not include off-site mitigation)? Check all that apply.

Table A-55. Management scale

	Pha	Phase I Phase II		Phase II		.11
Management Scale	Yes	%	Yes	%	Yes	%
Onsite management required	157	63%	117	53%	274	58%
Community or neighborhood scale management allowed	100	40%	58	26%	158	34%
Regional management scale allowed	94	38%	35	16%	129	27%
Other	26	10%	15	7%	41	9%

Question A-56 asked: do you offer an alternative to compliance with your performance standard or design standard for **New Development**?

Table A-56. Compliance alternatives for new development

	Phase I		Phase II		All	
Compliance Alternative	Yes	%	Yes	%	Yes	%
Yes, we have a waiver process	58	23%	30	14%	88	19%
Yes, we have an appeal process	35	14%	15	7%	50	11%
Yes, it is a stormwater mitigation program	25	10%	4	2%	29	6%
Yes, it is a payment in lieu program	28	11%	4	2%	32	7%
Yes, there is another type of alternative	26	10%	6	3%	32	7%
compliance program						
No, but there is an alternative compliance	11	4%	5	2%	16	3%
program offer by another level of government						
(state, county, etc.)						
No, an alternative compliance program does	80	32%	95	43%	175	37%
not exist						

Question A-57 asked do you offer an alternative to compliance with your performance standard or design standard for **Redevelopment**?

Table A-57. Compliance alternatives for redevelopment

	Phase I		Phase II		All	
Compliance Alternative	Yes	%	Yes	%	Yes	%
Alternatives to compliance are the same for	92	37%	43	19%	135	29%
new development and redevelopment (skip						
remaining options)						
Yes, we have a waiver process	10	4%	9	4%	19	4%
Yes, we have an appeal process	10	4%	8	4%	18	4%
Yes, it is a stormwater mitigation program	12	5%	2	1%	14	3%
Yes, it is a payment in lieu program	12	5%	3	1%	15	3%
Yes, there is another type of alternative	5	2%	4	2%	9	2%
compliance program						
No, but there is an alternative compliance	8	3%	3	1%	11	2%
program offer by another level of government						
(state, county, etc.)						
No, an alternative compliance program does	72	29%	83	37%	155	33%
not exist						

Question A-58 asked if options for alternative to compliance with your performance standard or design standard are offered, what are the criteria for determination that the standard cannot be met?

Table A-58. Basis for allowing alternatives to compliance

	Phase I		Phase II		All	
Basis for Alternative	Yes	%	Yes	%	Yes	%
Infiltration cannot be achieved: lot size too	56	22%	23	10%	79	17%
small outside of the footprint to create the						
necessary infiltration capacity (even with						
amended soils), shallow groundwater or other						
infiltration issues						
Soil instability as documented by geotechnical	42	17%	16	7%	58	12%
analysis						
Capture or reuse of stormwater cannot be	41	16%	15	7%	56	12%
achieved on the property						
Cost constraints	20	8%	4	2%	24	5%
Other	69	28%	32	14%	101	21%
An alternative compliance program does not	96	39%	95	43%	191	41%
exist						

Question A-59 asked the respondent to describe who is responsible for determining whether compliance with the standard can be achieved and whether mitigation is allowed?

Table A-59. Who is responsible for determining compliance feasibility

	Phase I		Phase II		All	
Responsible Party	Yes	%	Yes	%	Yes	%
MS4 operator staff	78	31%	27	12%	105	22%
Contractor employed by MS4 operator	1	0%	3	1%	4	1%
Owner or operator of the developed site	1	0%	0	0%	1	0%
Other	39	16%	32	14%	71	15%
Does Not Exist	84	34%	88	40%	172	37%
No Answer	46	18%	72	32%	118	25%

Retrofits (Questions A-60 to A-67)

Question A-60 asked have any stormwater retrofit projects been initiated or completed as part of your MS4 stormwater program to enhance the reduction of stormwater pollutants or runoff volume or flow rates?

Table A-60. Initiation and completion of retrofit projects

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
Yes	149	60%	87	39%	236	50%
No	97	39%	130	59%	227	48%
No answer	3	1%	5	2%	8	2%

Question A-61 asked do you have a stormwater retrofit program for the MS4 (may be voluntary)?

Table A-61. Stormwater retrofit programs

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
Yes	102	41%	39	18%	141	30%
No	144	58%	177	80%	321	68%
No answer	3	1%	6	3%	9	2%

Question A-62 asked which of the following are true for your retrofit program?

Table A-62. Retrofit program features

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
MS4 operator requires retrofits through regulation (local ordinance or other legal mechanism)	24	10%	13	6%	37	8%
MS4 operator provides incentives for retrofits	17	7%	9	4%	26	6%
MS4 operator implements retrofits on public property	90	36%	38	17%	128	27%
MS4 operator implements retrofits on private property	22	9%	5	2%	27	6%
MS4 operator promotes tree planting on private property	49	20%	14	6%	63	13%
Stream restoration is part of our retrofit plan	42	17%	17	8%	59	13%
Other	35	14%	9	4%	44	9%

Note: The values in this table do not add to 100% because respondents were allowed to select none or more than one answer if applicable.

Question A-63 asked who is responsible for paying for the retrofit projects?

Table A-63. Payment for retrofits

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
MS4 operator pays for retrofits only on public	89	36%	39	18%	128	27%
property						

	Phase I		Phase II		A	.11
Response	Yes	%	Yes	%	Yes	%
MS4 operator pays for all retrofits on public	7	3%	3	1%	10	2%
and private property						
MS4 operator offers grants/incentives for	26	10%	11	5%	37	8%
retrofits on private property						
Private entities are required to pay for retrofits	52	21%	17	8%	69	15%
on their property						
Other	22	9%	6	3%	28	6%
Not applicable	15	6%	17	8%	32	7%
Other			6 17			

Note: The values in this table do not add to 100% because respondents were allowed to select none or more than one answer if applicable.

Question A-64 asked what is the purpose of the stormwater retrofit program in your MS4 service area? Check all that apply.

Table A-64. Purpose of stormwater retrofit program

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
To comply with stormwater permit	64	26%	20	9%	84	18%
requirements						
As a demonstration site or training opportunity	36	14%	10	5%	46	10%
To comply with CSO long term control plan	7	3%	3	1%	10	2%
To address flooding	58	23%	26	12%	84	18%
To address wetlands mitigation	25	10%	4	2%	29	6%
To comply with Total Maximum Daily Load	50	20%	16	7%	66	14%
(TMDL) or other Clean Water Act water						
quality requirement(s)						
To comply with Safe Drinking Water Act	10	4%	3	1%	13	3%
(SDWA) wellhead protection or UIC						
regulations						
To comply with other federal regulations	12	5%	3	1%	15	3%
(ESA, CERCLA, WRDA, etc.)						
Other requirements, such as state requirements	10	4%	3	1%	13	3%
To address watershed plan or local water	56	22%	22	10%	78	17%
quality, habitat or stream stability or						
geomorphology concerns						
Other	17	7%	1	0%	18	4%
Not applicable	15	6%	19	9%	34	7%

Note: The values in this table do not add to 100% because respondents were allowed to select none or more than one answer if applicable.

Question A-65 asked what, if any, incentives are provided for private stormwater retrofits?

Table A-65. Incentives for stormwater retrofits

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
Reduced stormwater utility fees	18	7%	5	2%	23	5%
Development Incentives: (e.g., zoning upgrades, expedited permitting, reduced stormwater requirements, increases in floor area ratios, etc)	3	1%	0	0%	3	1%
Grants: Provide direct funding to property owners and/or community groups for implementing a range of green infrastructure projects and practices	15	6%	7	3%	22	5%

	Phase I		Phase II		A	11
Response	Yes	%	Yes	%	Yes	%
Rebates & Installation Financing: (e.g., provide	11	4%	1	0%	12	3%
funding, tax credits or reimbursements to property						
owners who install specific practices)						
Awards & Recognition Programs (e.g., provide	6	2%	5	2%	11	2%
marketing opportunities and public outreach for						
exemplary projects)						
Technical or resource assistance	20	8%	4	2%	24	5%
Other	8	3%	0	0%	8	2%
None	50	20%	34	15%	84	18%
Not applicable	23	9%	20	9%	43	9%

Note: The values in this table do not add to 100% because respondents were allowed to select none or more than one answer if applicable.

Question A-66 asked the respondent to provide a description of their retrofit program.

Several respondents indicated that they did not have a retrofit program or that it was not applicable. For those that did have a program, many described a process by which an evaluation was undertaken to identify the need for retrofits (e.g., and inventory/assessment of structures), followed by a feasibility study and prioritization, followed by project implementation as opportunities or funding allowed. Others indicated that their program was voluntary or reactive to complaints or individual problems.

The focus of most programs was on public projects, where stormwater retrofits would be part of larger CIPs (e.g., flood control, watershed management, street/parking lot work, public facilities). Some programs included a public component as well as a private component, the latter of which was typically voluntary and sometimes incentivized by a reduction in stormwater utility fees, reimbursement for part of the cost, or rebates. One program described a process of neighborhood-based assessments for green infrastructure retrofits prioritized by stream condition, lot size, presence of homeowner groups. A few respondents indicated that redevelopment triggered mandatory retrofits, e.g., all of the existing and new impervious surfaces needed to be included in the site treatment plan. One MS4 was required to provide stormwater management for 10% of the untreated impervious surface in the MS4 service area.

Funding of retrofit projects was cited as a common constraint. A few respondents described a cost-share arrangement for retrofits with municipal departments, non-profits, other municipalities, or the federal government (grants). Some programs were funded by stormwater utilities or tax districts.

Respondents described a number of priority pollutants/issues, including:

- TSS, erosion
- Nutrients
- Temperature
- Trash
- Flooding
- Water quality
- Channel instability

- Drainage system capacity
- Floodplain reconnection

The categories of retrofit activities cited by the respondents were varied, including the following:

- Development of watershed management plans
- Demonstration projects
- BMP testing and research program
- Shoreline stabilization and exotic species removal
- Stream restoration
- Riparian buffers
- Brownfield site restoration
- Upgrades to the MS4, including
 - o Catch basin retrofits for water quality (e.g., inserts, screens, restrictive inlets)
 - o Pipe repair/replacement
 - o Culvert sizing
 - o Weir control replacement
 - o Converting ditches to swales
 - o Converting dry ponds to wet ponds
 - Ditch piping
 - o Swale restoration
 - o Outfall retrofits for water quality, stability, energy dissipation
 - o Pond retrofits for water quality (e.g., forebays, outlet modifications, wetland islands)
 - o Promoting safe dams
 - o Evaluating flood control facilities for water quality enhancements
- Installation of regional controls:
 - o Retention ponds and constructed wetlands
 - o Converting dry ponds to wet ponds
 - o Pond enhancements
 - o Pump stations
- Treatment controls, such as baffle boxes and CDS units
- Green infrastructure, such as bioswales, downspout disconnection, dry wells, rain barrels, cisterns, porous pavement, rain gardens, green roofs, green streets, tree/vegetation planting, exfiltration trenches, and reducing impervious surfaces.
- Pollution prevention/source controls, such as hazmat storage, reduce irrigation runoff, and oil-water separators.

Question A-67 asked what kind of retrofit projects could make the most effective difference in terms of restoring water quality in your area?

Many respondents responded that they had no retrofits, that they were not applicable or not expected to be effective under current conditions, or that the program was unknown or undeveloped. Several said that the program was currently under development.

Other respondents stated that consider projects that address either infiltration, filtration, flow regimes, runoff volume, flooding, or habitat (or a combination of those) to be high priorities for retrofit programs.

Several respondents identified certain areas for targeted retrofits (e.g., coastal areas, high water table, impermeable soils, commercial areas, neighborhoods built prior to stormwater regulations). Some respondents indicated a preference for site-scale retrofits, while others indicated that regional BMPs were preferred. A few respondents said that they prioritize projects that target certain pollutants of concern (e.g., sediments, nutrients, bacteria, floatables/trash).

Most respondents listed specific retrofit project types that are the focus of their program, including the following:

- Agricultural BMPs: improved agricultural practices, fencing streams to exclude animals
- Appropriate sizing of drainage tiles
- Catch basin modifications (e.g., deep sump, resizing) and pollution control devices/inserts
- Conversion to xeriscape
- Conveyance channel maintenance and enhancement, including removing concrete, expanding canals/ditches
- Culvert additions/resizing
- Curb and gutter
- End-of-pipe treatment
- Erosion control
- Floatable/trash collection controls/facilities
- Floodplain reconnection
- Flow controls: installing weirs, increase storage, low flow diversions, offline retention, smaller catch basins upstream of primary control basins, street storage of runoff
- Green streets/streetscape improvements
- Impervious cover reduction, increased green space
- Infiltration/recharge projects
- Low impact development BMPs: bioretention, bioswales, grass swales, filter strips, tree boxes, green roofs, pervious pavement, enhanced swales, exfiltration trenches, French drains and dry wells
- Outfall rehabilitation, energy dissipation, outfall treatment/control structures, converting outfalls into groundwater infiltration; elimination of direct outfalls
- Parking lot retrofits
- Proprietary treatment controls, baffle boxes, vortex systems, clarifiers, oil and grit separators, subsurface treatment units
- Rainwater harvesting: cisterns, rain barrels
- Regional ponds, filter marshes, constructed wetlands, installing forebays for existing ponds, installing ponds along conveyance channels, dredging ponds and lakes, internal/external standpipe installation/modification

- Retrofitting of "legal drains" / "waters of the us" with two stage ditch design instead of allowing trapezoidal ditches that increase erosion and eventually result in a two stage design after years of erosion.
- Sewer optimization, sanitary sewer upgrades, CSS separation, increased CSS capacity, installing sanitary sewers to address failing septic systems
- Shoreline restoration
- Source control BMPs, e.g., pet waste disposal bags/receptacles, roof over trash enclosures
- Storm drain system modifications, e.g., perforated pipe, and replacement
- Stream restoration: bank stabilization, channel improvements, buffer establishment/enhancement, streambank reforestation, ravine stabilization
- Upgrading existing detention facilities: modify detention facilities for more natural flow/vegetation, conversion of detention basins to infiltration areas/wetlands, wetland plantings

One respondent said: Being a highly urbanized area with a substantially altered landscape since the mid-1800s, no amount of retrofit activities will restore water quality to pre-development levels. A large body of research has emerged to demonstrate that urban environments are inherently different from non-urbanized areas. Applying the same water quality standards to both urban and non-urban streams creates an artificial standard that cannot be met.

Specific Stormwater Controls (Questions A-68 to A-79)

Question A-68 asked:

- (a) Which of the following stormwater controls are installed/applied within your jurisdiction (includes those controls located on both public and private property)?
- (b) For which stormwater controls is the MS4 operator responsible for maintaining on public and private property (at any level of service)?
- (c) For which practices do you have available cost information, including either capital cost or operation and maintenance cost or both?
- (d) For which stormwater controls do you have monitoring data showing the performance of the control?

Table A-68. Controls installed

Installed/		Main	ıtain	Available Cost	Performance
MS4 Type	Applied in MS4	Public	Private	Information	Data
Extended Detent	ion Basin (wet or dr	·y)			
Phase I	177	151	73	49	16
	71%	61%	29%	20%	6%
Phase II	152	123	72	26	3
	68%	55%	32%	12%	1%
All	329	274	145	75	19
	70%	58%	31%	16%	4%
Retention Basin					
Phase I	163	137	68	33	5
	65%	55%	27%	13%	2%
Phase II	134	93	58	20	3
	60%	42%	26%	9%	1%
All	297	230	126	53	8
	63%	49%	27%	11%	2%
Curb and Gutter	/Storm Sewer				
Phase I	218	207	85	54	5
	88%	83%	34%	22%	2%
Phase II	185	182	56	37	7
	83%	82%	25%	17%	3%
All	403	389	141	91	12
	86%	83%	30%	19%	3%
Catch Basins	<u> </u>				
Phase I	224	216	83	60	4
	90%	87%	33%	24%	2%
Phase II	182	179	58	38	7
	82%	81%	26%	17%	3%
All	406	395	141	98	11
	86%	84%	30%	21%	2%
Catch Basin Inse	rt				
Phase I	141	116	68	28	9
	57%	47%	27%	11%	4%
Phase II	72	59	29	12	4
	32%	27%	13%	5%	2%
All	213	175	97	40	13
	45%	37%	21%	8%	3%

Regulated MS4 ICR Survey Summary

	Installed/	Maint	ain	Available Cost	Performance
MS4 Type	Applied in MS4	Public	Private	Information	Data
Underground D					
Phase I	133	67	64	18	3
	53%	27%	26%	7%	1%
Phase II	108	51	55	5	2
	49%	23%	25%	2%	1%
All	241	118	119	23	5
	51%	25%	25%	5%	1%
Underground In	ıfiltration	<u>.</u>			
Phase I	123	68	54	12	1
	49%	27%	22%	5%	0%
Phase II	82	41	38	4	1
	37%	18%	17%	2%	0%
All	205	109	92	16	2
	44%	23%	20%	3%	0%
Infiltration Tren					
Phase I	106	64	51	15	1
	43%	26%	20%	6%	0%
Phase II	78	41	33	8	1
	35%	18%	15%	4%	0%
All	184	105	84	23	2
7 111	39%	22%	18%	5%	0%
Dry Well	3770	2270	1070	270	070
Phase I	77	46	43	11	1
T Huse T	31%	18%	17%	4%	0%
Phase II	59	37	30	3	0
T Hase II	27%	17%	14%	1%	0%
All	136	83	73	14	1
All	29%	18%	15%	3%	0%
Sand Filters	2970	1070	1370	3 /0	070
Phase I	83	48	34	10	1
r nase i	33%	19%	14%	4%	0%
Phase II	30	18	10	3	0%
Phase II	14%	8%	5%	1%	0%
A 11		66		13	
All	113		9%	3%	1 0%
Other Media Fil		14%	9%	3%	0%
Phase I	94	54	48	13	2
Phase I	38%		19%		
Dl II		22%		5%	1%
Phase II	31	25	12	4	000
A 11	14%	11%	5%	2%	0%
All	125	79	60	17	2
0.1/11/1	27%	17%	13%	4%	0%
Oil/Water Separ		00	04	10	
Phase I	158	98	81	19	6
DI II	63%	39%	33%	8%	2%
Phase II	106	70	49	13	2
	48%	32%	22%	6%	1%
All	264	168	130	32	8
	56%	36%	28%	7%	2%
Vegetated Swale			1	1	
Phase I	205	164	99	32	6

Regulated MS4 ICR Survey Summary

	Installed/	Mainta	ain	Available Cost	Performance
MS4 Type	Applied in MS4	Public	Private	Information	Data
	82%	66%	40%	13%	2%
Phase II	146	119	65	15	2
	66%	54%	29%	7%	1%
All	351	283	164	47	8
	75%	60%	35%	10%	2%
Constructed Wo	etland			-	
Phase I	107	86	39	23	8
	43%	35%	16%	9%	3%
Phase II	67	44	27	9	4
	30%	20%	12%	4%	2%
All	174	130	66	32	12
	37%	28%	14%	7%	3%
Filter Strip/Veg					
Phase I	150	98	62	18	1
	60%	39%	25%	7%	0%
Phase II	90	59	36	8	1
1111100 11	41%	27%	16%	4%	0%
All	240	157	98	26	2
	51%	33%	21%	6%	0%
Wetland Basin/		2570	2170	3,0	3,0
Phase I	95	79	29	18	3
111001	38%	32%	12%	7%	1%
Phase II	53	35	19	4	1
T Huse II	24%	16%	9%	2%	0%
All	148	114	48	22	4
7111	31%	24%	10%	5%	1%
Bioretention Ce		2170	1070	270	170
Phase I	133	97	66	23	6
111001	53%	39%	27%	9%	2%
Phase II	92	54	38	14	5
T Habe II	41%	24%	17%	6%	2%
All	225	151	104	37	11
7 111	48%	32%	22%	8%	2%
Trees/Tree Box	1070	3270	2270	370	270
Phase I	112	85	53	25	1
111001	45%	34%	21%	10%	0%
Phase II	61	59	23	5	0
1111100 11	27%	27%	10%	2%	0%
All	173	144	76	30	1
7 111	37%	31%	16%	6%	0%
Green Roof/Eco		3170	1070	370	070
Phase I	53	28	23	11	3
11111001	21%	11%	9%	4%	1%
Phase II	15	6	5	3	0
- 11110 11	7%	3%	2%	1%	0%
All	68	34	28	14	3
	14%	7%	6%	3%	1%
Riparian Buffer		7 /0	0 /0	5 /0	1 /0
Phase I	97	73	29	11	2
1 11450 1	39%	29%	12%	4%	1%
Phase II	75	50	35	4 % 4	0
r nase n	/3	30	33	4	U

	Installed/	Mainta	ain	Available Cost	Performance
MS4 Type	Applied in MS4	Public	Private	Information	Data
	34%	23%	16%	2%	0%
All	172	123	64	15	2
	37%	26%	14%	3%	0%
Soil Amendmen		<u>'</u>			
Phase I	46	27	21	10	0
	18%	11%	8%	4%	0%
Phase II	27	12	9	4	1
	12%	5%	4%	2%	0%
All	73	39	30	14	1
	15%	8%	6%	3%	0%
Permeable Con	crete/Permeable Aspha				
Phase I	143	89	69	32	4
	57%	36%	28%	13%	2%
Phase II	70	38	31	8	0
	32%	17%	14%	4%	0%
All	213	127	100	40	4
	45%	27%	21%	8%	1%
Cistern					
Phase I	47	20	23	12	2
	19%	8%	9%	5%	1%
Phase II	20	8	6	2	0
	9%	4%	3%	1%	0%
All	67	28	29	14	2
	14%	6%	6%	3%	0%
Rain Barrel			2,72		
Phase I	74	20	33	12	1
	30%	8%	13%	5%	0%
Phase II	57	16	29	6	1
	26%	7%	13%	3%	0%
All	131	36	62	18	2
	28%	8%	13%	4%	0%
Downspout Disc			22,73	.,.	
Phase I	89	35	43	9	1
	36%	14%	17%	4%	0%
Phase II	51	20	25	3	0
	23%	9%	11%	1%	0%
All	140	55	68	12	1
	30%	12%	14%	3%	0%
Native Vegetati	on/Landscaping Planti				
Phase I	171	145	78	27	2
	69%	58%	31%	11%	1%
Phase II	107	79	45	8	0
	48%	36%	20%	4%	0%
All	278	224	123	35	2
	59%	48%	26%	7%	0%
Manufactured l				. 70	
Phase I	135	107	66	33	12
	54%	43%	27%	13%	5%
Phase II	49	32	18	5	2
	22%	14%	8%	2%	1%
All	184	139	84	38	14
-	101		Ų.	50	

	Installed/	Maiı	ntain	Available Cost	Performance
MS4 Type	Applied in MS4	Public	Private	Information	Data
	39%	30%	18%	8%	3%
Other Controls					
Phase I	19	15	5	5	3
	8%	6%	2%	2%	1%
Phase II	5	3	1	1	0
	2%	1%	0%	0%	0%
All	24	18	6	6	3
	5%	4%	1%	1%	1%

Question A-69 asked have you done a cost comparison between traditional stormwater practices (such as stormwater detention ponds) and stormwater retention practices (i.e., LID or green infrastructure practices that infiltrate, evapotranspire or reuse stormwater) for any public projects?

Table A-69a. Cost comparison

	Phase I Phase II		All			
Response	Yes	%	Yes	%	Yes	%
Yes	15	6%	5	2%	20	4%
No	231	93%	206	93%	437	93%
No answer	3	1%	11	5%	14	3%

If so, are cost data available?

Table A-69b. Availability of cost data

	Pha	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%	
Yes	13	5%	3	1%	16	3%	
No	49	20%	43	19%	92	20%	
No answer	187	75%	176	79%	363	77%	

Question A-70 asked what is the driver for implementation of stormwater retention practices (i.e., LID or green infrastructure practices that infiltrate, evapotranspire or reuse stormwater) in your MS4 service area? Check all that apply.

Table A-70. Stormwater implementation driver

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
Stormwater management requirement	137	55%	101	45%	238	51%
CSO long term control plan requirement	13	5%	8	4%	21	4%
To address flooding	68	27%	74	33%	142	30%
TMDL or other water quality requirement	63	25%	34	15%	97	21%
Safe Drinking Water Act requirement	9	4%	15	7%	24	5%
Other federal regulation requirement	13	5%	13	6%	26	6%
Other	53	21%	45	20%	98	21%
Unknown	11	4%	31	14%	42	9%
Not applicable	39	16%	27	12%	66	14%

Question A-71 asked, in your jurisdiction, which of the following ordinances or other types of regulations may **prevent** stormwater retention practices (i.e., LID or green infrastructure practices that infiltrate, evapotranspire or reuse stormwater) from being implemented?

Table A-71. Ordinances preventing retention device implementation

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
Specific Water Requirements						
Standing water restrictions which may prevent	102	41%	37	17%	139	30%
the use of extended detention, water reuse or						
other practices.						
Water rights issues which may prevent water	29	12%	12	5%	41	9%
harvesting or reuse (rain barrels, cisterns)						
Water rights issues which may prevent	25	10%	7	3%	32	7%
stormwater infiltration						
Restrictions related to groundwater	109	44%	56	25%	165	35%
contamination potential						
Restrictions related to sole source aquifer	15	6%	12	5%	27	6%
limitations						
Restrictions on tree/wetland protection	50	20%	35	16%	85	18%
requirements						
Site Design/Infrastructure Practices						
Curb and gutter requirements which may	140	56%	112	50%	252	54%
restrict roadside infiltrations practices						
Maximum/minimum parking lot size	137	55%	124	56%	261	55%
requirements						
Maximum/minimum roadway widths	159	64%	139	63%	298	63%
Requirements setting minimum/maximum cul-	143	57%	124	56%	267	57%
de-sac radius						
Restrictions on the width of rights-of-way	125	50%	92	41%	217	46%
Setbacks from public or private infrastructure	120	48%	90	41%	210	45%
Conflicts in obtaining private land (e.g., for	109	44%	63	28%	172	37%
use as a public right-of-way)						
Building/Structure Requirements						
Restrictions on setbacks/frontages	132	53%	106	48%	238	51%
Restrictions related to plumbing codes (e.g.,	115	46%	50	23%	165	35%
prohibitions on stormwater reuse for toilet						
flushing)						
Vegetation Requirements						
Restriction on height of vegetation (e.g.,	72	29%	57	26%	129	27%
wetland vegetation or grasses)						
Restriction related to tree placement (e.g.,	117	47%	73	33%	190	40%
restricting the places where trees may be						
planted, such as near sidewalks, utility poles,						
along certain stretches of roads)						
Aesthetic requirements for plantings	75	30%	37	17%	112	24%
Other Requirements				1		
Requirements that may restrict the use of	76	31%	28	13%	104	22%
pervious concrete, porous asphalt, modular						
block pavers, or other alternatives to						
conventional/impermeable paving materials						
Limited mixed use/compact development	41	16%	32	14%	73	15%
Restrictions related to deeds	22	9%	11	5%	33	7%

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
Restrictions on stormwater reuse for irrigation	56	22%	14	6%	70	15%
(e.g., health code restrictions)						
Solar access ordinances	10	4%	4	2%	14	3%
Other	39	16%	13	6%	52	11%
No requirements	36	14%	49	22%	85	18%

Question A-72 asked do you have any maintenance concerns that may **prevent** stormwater retention practices (i.e., LID or green infrastructure practices that infiltrate, evapotranspire or reuse stormwater) from being implemented in your jurisdiction?

Table A-72. Maintenance concerns preventing retention device implementation

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
Maintenance concerns preventing practice	152	61%	98	44%	250	53%
implementation						
No maintenance concerns	97	39%	124	56%	221	47%

Question A-73 asked, in your jurisdiction, are there categories or areas excluded from stormwater infiltration due to concerns for groundwater contamination or mobilization of contaminated sediments?

Table A-73. Categories excluded from stormwater infiltration

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
Yes	109	44%	43	19%	152	32%
No	133	53%	174	78%	307	65%
No answer	7	3%	5	2%	12	3%

Question A-74 asked are there stormwater discharges from your jurisdiction to a state-defined source water protection area for public water supplies?

Table A-74. Stormwater discharges to source water protection area

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
Yes	60	24%	45	20%	105	22%
No	143	57%	117	53%	260	55%
Not applicable	40	16%	55	25%	95	20%
No answer	6	2%	5	2%	11	2%

Question A-75 asked are any of the following requirements or programs implemented in your jurisdiction? Check all that apply.

Table A-75. Requirements or programs implemented

	Phase I		Phase II		All	
Program or Requirement	Yes	%	Yes	%	Yes	%
Open space program or requirements	169	68%	114	51%	283	60%
Urban growth boundaries	81	33%	45	20%	126	27%
Natural resource area protection	147	59%	90	41%	237	50%
Reduce lot/parcel size requirements	56	22%	39	18%	95	20%

	Phase I		Phase II		All	
Program or Requirement	Yes	%	Yes	%	Yes	%
Reduce street width requirements	40	16%	25	11%	65	14%
Stream restoration/remediation program	78	31%	45	20%	123	26%
Incentives for infill/redevelopment	91	37%	18	8%	109	23%
Incentives for Brownfield development	64	26%	17	8%	81	17%
Incentives for mixed use	81	33%	31	14%	112	24%
Enterprise communities or empowerment	54	22%	19	9%	73	15%
zones						
Buffer/riparian corridor requirements	110	44%	86	39%	196	42%
Restrictions on the amount of impervious	82	33%	77	35%	159	34%
surfaces (e.g., caps on the amount of						
impervious surfaces)						
Other	38	15%	5	2%	43	9%
None	21	8%	43	19%	64	14%
Not applicable	7	3%	8	4%	15	3%

Question A-76 asked do you have any of the following ordinances, other regulatory mechanisms or policies specific to parking lots in your jurisdiction? Check all that apply.

Table A-76. Parking lot regulatory mechanisms

	Phase I		Phase II		A	11
Parking Lot Regulatory Mechanisms	Yes	%	Yes	%	Yes	%
Reduced parking lot size requirements	32	13%	12	5%	44	9%
Pervious material requirements	32	13%	9	4%	41	9%
Design standards that require retention	63	25%	25	11%	88	19%
practices such as rain gardens, infiltration						
islands, or others						
Design standards that require curb cuts or	43	17%	34	15%	77	16%
other flow requirements						
Other	65	26%	28	13%	93	20%
No	111	45%	145	65%	256	54%

Question A-77 asked what, if any, incentives are provided to use stormwater retention practices (i.e., LID or green infrastructure practices that infiltrate, evapotranspire or reuse stormwater) in **new development and redevelopment** projects (commercial, residential, mixed use, and/or institutional) in your jurisdiction? Check all that apply.

Table A-77a. Incentives for retention practices in new development

	Phase I		Phase II		All	
Incentive	Yes	%	Yes	%	Yes	%
Reduced stormwater utility fees	25	10%	17	8%	42	9%
Development incentives: (e.g., zoning	21	8%	9	4%	30	6%
upgrades, expedited permitting, reduced						
stormwater requirements, increases in floor						
area ratios, etc.)						
Reduction in the volume of stormwater	26	10%	21	9%	47	10%
required to be managed						
Grants: Provide direct funding to property	8	3%	9	4%	17	4%
owners and/or community groups for						
implementing a range of green infrastructure						
projects and practices						

	Phase I		Phase II		A	11
Incentive	Yes	%	Yes	%	Yes	%
Rebates & installation financing: (e.g., provide	5	2%	2	1%	7	1%
funding, tax credits or reimbursements to						
property owners who install specific practices)						
Awards & recognition programs (e.g., provide	14	6%	9	4%	23	5%
marketing opportunities and public outreach						
for exemplary projects)						
Other	20	8%	6	3%	26	6%
None	143	57%	147	66%	290	62%
Unknown	12	5%	11	5%	23	5%
Not Applicable	17	7%	6	3%	23	5%

Table A-77b. Incentives for retention practices in redevelopment

	Pha	se I	Pha	se II	A	11
Incentive	Yes	%	Yes	%	Yes	%
Reduced stormwater utility fees	24	10%	16	7%	40	8%
Development incentives: (e.g., zoning	18	7%	8	4%	26	6%
upgrades, expedited permitting, reduced						
stormwater requirements, increases in floor						
area ratios, etc.)						
Reduction in the volume of stormwater	22	9%	15	7%	37	8%
required to be managed						
Grants: Provide direct funding to property	8	3%	8	4%	16	3%
owners and/or community groups for						
implementing a range of green infrastructure						
projects and practices						
Rebates & installation financing: (e.g., provide	7	3%	2	1%	9	2%
funding, tax credits or reimbursements to						
property owners who install specific practices)						
Awards & recognition programs (e.g., provide	18	7%	9	4%	27	6%
marketing opportunities and public outreach						
for exemplary projects)						
Other	19	8%	6	3%	25	5%
None	139	56%	141	64%	280	59%
Unknown	12	5%	13	6%	25	5%
Not Applicable	20	8%	17	8%	37	8%

Question A-78 asked does your jurisdiction have a master plan or other planning process that projects development over a certain time period (may be done by other departments or agency in your jurisdiction)?

Table A-78. Master plan or other planning process

	Pha	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%	
Yes	214	86%	141	64%	355	75%	
No	30	12%	75	34%	105	22%	
No answer	5	2%	6	3%	11	2%	

Question A-79 asked is one of the purposes of this planning process to direct development towards specific area, such as infill areas, high density or compact development, brownfield development, or proximity to mass-transit?

Table A-79. Plan purpose to direct development

	Pha	Phase I		Phase II		11
Response	Yes	%	Yes	%	Yes	%
Yes	148	59%	105	47%	253	54%
No	52	21%	42	19%	94	20%
No answer	49	20%	75	34%	124	26%

Technical and Monitoring (Questions A-80 to A-88)

Question A-80 asked what, if any, incentives are provided in your jurisdiction for infill, high density or compact development, brownfield development, or proximity to mass-transit?

Table A-80. Incentives for infill

	Phase I		Phas	e II	Al	l
Incentives	Yes	%	Yes	%	Yes	%
Reduced stormwater utility fees	2	1%	0	0%	2	0%
Development incentives: (e.g., zoning	67	27%	22	10%	89	19%
upgrades, expedited permitting, reduced						
stormwater requirements, increases in floor						
area ratios, etc.)						
Reduction in the volume of stormwater	17	7%	3	1%	20	4%
required to be managed (e.g., development						
projects must manage the first ½" of rainfall						
on-site while redevelopment projects must						
manage less rainfall)						
Grants: Provide direct funding to property	17	7%	4	2%	21	4%
owners and/or community groups for						
implementing a range of green infrastructure						
projects and practices						
Rebates & installation financing: (e.g., provide	10	4%	3	1%	13	3%
funding, tax credits or reimbursements to						
property owners who install specific practices)						
Awards & recognition programs (e.g., provide	12	5%	4	2%	16	3%
marketing opportunities and public outreach						
for exemplary projects)						
Other	29	12%	5	2%	34	7%
None	110	44%	152	68%	262	56%
Unknown	26	10%	22	10%	48	10%
Not Applicable	17	7%	11	5%	28	6%

MONITORING

Question A-81 asked what is the total number of stormwater outfalls in your MS4 service area that are covered by either a Phase I or Phase II MS4 stormwater permit?

Table A-81a. Total number of outfalls covered by MS4 permit

	Phase 1		Phase 2		All	
Response/Number of Outfalls	Yes	%	Yes	%	Yes	%
0–100 outfalls	77	31%	97	44%	174	37%
101–500 outfalls	44	18%	47	21%	91	19%
501–1,000 outfalls	23	9%	6	3%	29	6%
1,001–5,000 outfalls	29	12%	9	4%	38	8%
More than 5,000 outfalls	5	2%	1	0%	6	1%
No answer	71	29%	62	28%	133	28%

Table A-81b. Outfall number unknown and including small outfalls

	Phase I		Phase II		All	
Response	Yes	%	Yes	%	Yes	%
Unknown	69	28%	62	28%	131	28%
Check if the total number of outfalls includes	75	30%	57	26%	132	28%
outfalls smaller than major outfalls as defined						
in 40 CFR122.26(b)(5) and Schedule F of the						
NPDES MS permits						

Question A-82 asked do you, or a partner organization, perform any of the following types of monitoring as part of your MS4 stormwater program?

Table A-82. Types of monitoring performed under MS4 program

	Phase I		Phase II		Al	1
Monitoring	Yes	%	Yes	%	Yes	%
Stormwater outfall monitoring – dry weather	129	52%	74	33%	203	43%
(do not include visual inspections as part of						
the Illicit Discharge and Detection Elimination						
(IDDE) program)						
Stormwater outfall monitoring – wet weather	113	45%	43	19%	156	33%
Stormwater monitoring of specific stormwater	60	24%	23	10%	83	18%
controls – dry weather						
Stormwater monitoring of specific stormwater	67	27%	30	14%	97	21%
controls – wet weather						
In-stream monitoring for water quality	160	64%	45	20%	205	44%
parameters						
In-stream monitoring for biological	113	45%	29	13%	142	30%
parameters						
In-stream monitoring for geomorphology or	80	32%	13	6%	93	20%
physical habitat						
Other	63	25%	16	7%	79	17%
No	25	10%	92	41%	117	25%

Question A-83 asked are you required to perform any type of monitoring of any outfalls as part of your stormwater MS4 permit (do not include visual inspections as part of the Illicit Discharge and Detection Elimination (IDDE) program)?

Table A-83. Permit requirement to monitor outfalls

	Pha	se I	Pha	se II	All		
Response	Yes	%	Yes	%	Yes	%	
Yes	123	49%	45	20%	168	36%	
No, however we conduct monitoring to meet other obligations	32	13%	32	14%	64	14%	
No, we do not conduct monitoring of outfalls	91	37%	137	62%	228	48%	
No answer	3	1%	8	4%	11	2%	

Question A-84 asked how many outfalls did you, or a partner organization, monitor in the last 5 years (do not include visual inspections as part of the Illicit Discharge and Detection Elimination (IDDE) program)?

Table A-84. Outfalls monitored 2005-2009

			Number of	Outfalls Covered	d by Permit	
MS4 Type	Statistic	2005	2006	2007	2008	2009
Phase I	Min	0	0	0	0	0
	Median	1	2	3	3	3
	Max	425	504	872	936	884
	Count	198	204	207	208	213
Phase II	Min	0	0	0	0	0
	Median	0	0	0	0	0
	Max	685	4,321	4,321	3,784	3,784
	Count	167	171	173	178	180
All	Min	0	0	0	0	0
	Median	0	0	0	0	0
	Max	685	4,321	4,321	3,784	3,784
	Count	365	375	380	386	393

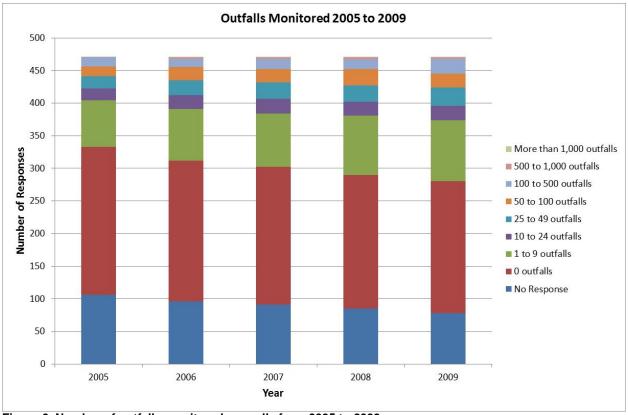


Figure 6. Number of outfalls monitored annually from 2005 to 2009

Question A-85 asked do you, or a partner organization, conduct monitoring of outfalls or specific stormwater controls for pollutant levels (e.g., pH, metals, nutrients, suspended solids, etc.) or flow-related parameters (e.g., flow rate, volume, etc.)?

Table A-85. Monitoring at outfalls and of specific stormwater controls

	Pha	se I	Pha	se II	All		
Response	Yes	%	Yes	%	Yes	%	
Outfalls							
Pollutant levels	50	20%	25	11%	75	16%	
Flow-related parameters	1	0%	6	3%	7	1%	
Both	84	34%	16	7%	100	21%	
No	103	41%	164	74%	267	57%	
No answer	11	4%	11	5%	22	5%	
Specific Stormwater Controls							
Pollutant levels	23	9%	8	4%	31	7%	
Flow-related parameters	5	2%	6	3%	11	2%	
Both	51	20%	5	2%	56	12%	
No	139	56%	177	80%	316	67%	
No answer	31	12%	26	12%	57	12%	

Question A-86 asked do you, or a partner organization, have data or modeling information indicating any chemical, biological, and/or physical changes in the receiving waters to which you discharge stormwater that you can attribute to implementation of your stormwater program (e.g., we saw a reduction in total nitrogen and an increase in sensitive stream macroinvertebrates)?

Table A-86. Data or modeling information show receiving water changes

	Pha	se I	Pha	se II	All		
Response	Yes	%	Yes	%	Yes	%	
Yes	79	32%	13	6%	92	20%	
No	114	46%	158	71%	272	58%	
Unknown	42	17%	37	17%	79	17%	
Not applicable	9	4%	7	3%	16	3%	
No answer	5	2%	7	3%	12	3%	

Section B: Financial Information (Questions B-1 to B-29)

Question B-1 Select the month that begins your fiscal year

Table B-1. Month that begins fiscal year

Month	Count	Percent
January	136	29%
March	2	0%
April	7	1%
May	6	1%
June	10	2%
July	207	44%
August	1	0%
September	2	0%
October	77	16%
November	1	0%
No Answer	22	5%

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Question B-2 Indicate your jurisdiction's total operating budget and stormwater related annual operating budget.

Table B-2a. Total operating budget and stormwater-related budget

Varia	able/				Standard		1%	5%	95%	99%		NA, Unknown
Phase	e	Yr	Na	Mean	deviation	Range	percentile	percentile	percentile	percentile	Missing	etc.b
		2005	217	\$9,473,128	\$27,296,395	\$231,334,161	\$15,000	\$57,890	\$34,220,582	\$180,868,619	23	9
		2006	218	\$9,282,676	\$27,778,876	\$281,814,306	\$20,000	\$69,000	\$30,000,000	\$104,571,600	23	8
#	se]	2007	221	\$9,645,677	\$27,092,059	\$255,606,118	\$15,104	\$69,000	\$37,957,990	\$107,053,000	22	6
dg	has	2008	224	\$10,587,128	\$32,973,713	\$352,447,729	\$15,000	\$91,210	\$36,320,800	\$109,351,300	22	3
Budget	P	2009	229	\$11,772,965	\$36,293,911	\$401,367,551	\$15,000	\$99,104	\$45,082,461	\$209,960,000	18	2
er		2005	128	\$867,248	\$1,623,294	\$9,199,701	\$1,000	\$3,000	\$4,025,365	\$8,517,573	86	8
vat	П	2006	137	\$920,006	\$1,970,851	\$15,899,000	\$1,000	\$3,500	\$4,017,694	\$10,651,805	79	6
ĬĬ,	se]	2007	147	\$1,038,416	\$2,400,269	\$22,399,300	\$1,000	\$4,349	\$4,728,270	\$9,617,020	70	5
Stormwater	ha	2008	157	\$1,114,092	\$2,826,217	\$25,599,000	\$1,000	\$5,000	\$5,335,643	\$16,615,203	64	1
S	P	2009	170	\$1,056,148	\$2,639,594	\$23,686,135	\$1,000	\$4,910	\$5,098,705	\$17,600,000	51	1
		2005	199	\$355,201,483	\$655,044,936	\$4,869,856,922	\$173,650	\$645,000	\$1,413,200,000	\$4,384,000,000	47	3
		2006	200	\$390,988,772	\$700,957,167	\$5,084,531,714	\$210,596	\$711,122	\$1,472,334,900	\$3,866,000,000	45	4
	se]	2007	205	\$425,158,615	\$778,105,604	\$5,938,437,947	\$236,000	\$865,842	\$1,506,054,500	\$3,652,277,752	41	3
	ha	2008	207	\$440,772,855	\$787,552,980	\$5,797,797,140	\$250,000	\$1,440,313	\$1,682,964,469	\$3,510,513,000	39	3
	P	2009	211	\$451,387,659	\$816,898,474	\$6,261,794,277	\$300,000	\$1,469,000	\$1,759,500,000	\$3,846,353,000	36	2
Budget		2005	157	\$67,393,221	\$230,369,981	\$1,550,136,287	\$189,980	\$372,163	\$195,752,848	\$1,523,963,815	64	1
gnd	=	2006	161	\$70,779,594	\$238,697,516	\$1,646,354,986	\$201,663	\$432,542	\$213,604,755	\$1,544,685,598	60	1
H H	se]	2007	174	\$68,369,721	\$227,859,244	\$1,735,609,100	\$25,884	\$350,000	\$228,955,786	\$1,605,860,371	47	1
Total	hag	2008	177	\$72,068,129	\$240,734,540	\$1,848,852,500	\$195,932	\$410,000	\$234,380,179	\$1,629,216,536	44	1
L	Р	2009	188	\$69,983,694	\$238,889,717	\$1,903,090,126	\$6,287	\$410,000	\$210,088,345	\$1,713,610,074	33	1

Notes

a. There are 471 responses, of which 249 reported Phase I and 222 reported Phase II.

b. Variables with missing data, or "NA," "Unknown," or anomaly responses (i.e., SW Budget > Total Budget) are excluded from item summary statistics and noted in the table.

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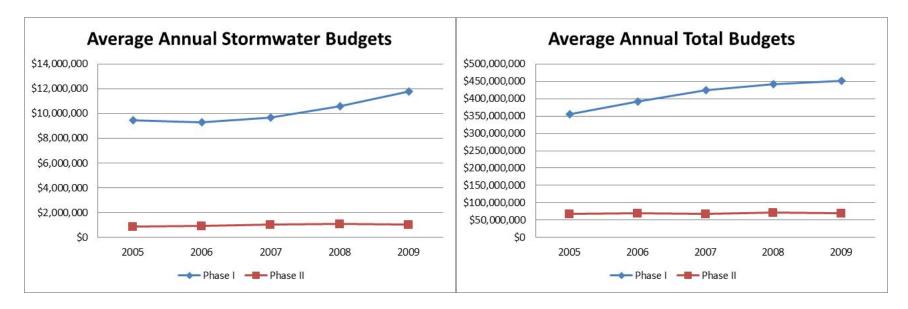


Table B-2b. Total operating budget and stormwater-related budget by type of respondent

Variable	/				Standard		1%	5%	95%			NA, Unknown
Phase	Type	Yr	N	Mean	deviation	Range	percentile	percentile	percentile	99% percentile	Missing	etc.
ų I	City	2005	140	\$10,251,102	\$32,282,086	\$231,333,755	\$15,246	\$186,825	\$33,348,287	\$216,904,137	10	6
dge		2006	141	\$10,117,382	\$33,356,978	\$281,803,491	\$20,000	\$146,089	\$31,267,900	\$248,784,696	9	6
Budget		2007	143	\$9,866,945	\$31,861,189	\$255,605,656	\$15,104	\$199,315	\$29,511,058	\$250,016,923	9	4
		2008	143	\$11,197,362	\$39,565,042	\$352,447,729	\$25,791	\$203,086	\$31,336,800	\$288,087,491	10	3
Stormwater		2009	146	\$11,232,266	\$40,291,885	\$401,364,881	\$80,436	\$194,675	\$32,264,045	\$242,007,400	8	2
l á l	County	2005	38	\$9,694,043	\$14,804,624	\$81,922,000	\$38,000	\$69,000	\$40,865,105	\$81,960,000	6	2
tor		2006	38	\$9,474,327	\$10,684,978	\$45,075,316	\$40,000	\$69,000	\$30,000,000	\$45,115,316	7	1
NZ		2007	38	\$11,006,678	\$12,327,534	\$44,724,307	\$69,000	\$92,236	\$39,494,662	\$44,793,307	7	1
		2008	39	\$10,941,996	\$12,994,248	\$60,253,659	\$69,000	\$91,210	\$36,320,800	\$60,322,659	7	0
		2009	41	\$16,372,648	\$33,657,226	\$209,891,000	\$69,000	\$247,212	\$49,837,829	\$209,960,000	5	0
	Special	2005	10	\$7,590,627	\$15,604,979	\$51,245,000	\$7,000	\$7,000	\$51,252,000	\$51,252,000	2	0
	District	2006	10	\$4,935,862	\$7,426,584	\$24,367,636	\$8,000	\$8,000	\$24,375,636	\$24,375,636	2	0
		2007	11	\$7,993,137	\$18,143,268	\$61,959,806	\$12,000	\$12,000	\$61,971,806	\$61,971,806	1	0
		2008	12	\$6,546,550	\$14,064,599	\$50,296,925	\$15,000	\$15,000	\$50,311,925	\$50,311,925	0	0
		2009	12	\$9,124,873	\$23,508,992	\$83,239,013	\$11,000	\$11,000	\$83,250,013	\$83,250,013	0	0
	Town,	2005	4	\$896,329	\$1,095,041	\$2,319,658	\$30,000	\$30,000	\$2,349,658	\$2,349,658	2	0
	Village or	2006	4	\$958,044	\$1,147,987	\$2,410,565	\$40,000	\$40,000	\$2,450,565	\$2,450,565	2	0
	Borough	2007	4	\$985,517	\$1,158,827	\$2,410,565	\$40,000	\$40,000	\$2,450,565	\$2,450,565	2	0
		2008	4	\$1,001,939	\$1,132,290	\$2,435,565	\$15,000	\$15,000	\$2,450,565	\$2,450,565	2	0

Regulated MS4 ICR Survey Summary

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riable/ ase	Туре	Yr	N	Mean	Standard deviation	Range	1% percentile	5% percentile	95% percentile	99% percentile	Missing	NA, Unknown etc.
		2009	4	\$1,154,372	\$1,077,647	\$2,428,965	\$15,000	\$15,000	\$2,443,965	\$2,443,965	2	0
	Township	2005	2	\$20,625	\$4,419	\$6,250	\$17,500	\$17,500	\$23,750	\$23,750	1	0
	1	2006	2	\$31,875	\$11,490	\$16,250	\$23,750	\$23,750	\$40,000	\$40,000	1	0
		2007	2	\$30,000	\$14,142	\$20,000	\$20,000	\$20,000	\$40,000	\$40,000	1	0
		2008	2	\$35,000	\$21,213	\$30,000	\$20,000	\$20,000	\$50,000	\$50,000	1	0
		2009	2	\$34,000	\$22,627	\$32,000	\$18,000	\$18,000	\$50,000	\$50,000	1	0
	Other	2005	23	\$7,504,692	\$15,217,752	\$67,985,000	\$15,000	\$314,707	\$33,383,552	\$68,000,000	2	1
		2006	23	\$7,991,023	\$16,753,970	\$78,975,000	\$25,000	\$321,930	\$20,250,851	\$79,000,000	2	1
		2007	23	\$9,153,962	\$18,841,159	\$83,945,000	\$55,000	\$298,598	\$40,898,104	\$84,000,000	2	1
		2008	24	\$10,871,657	\$21,601,316	\$84,540,000	\$60,000	\$314,029	\$70,114,792	\$84,600,000	2	0
		2009	24	\$11,276,482	\$22,662,237	\$97,930,000	\$70,000	\$295,396	\$59,031,013	\$98,000,000	2	0
II	City	2005	55	\$1,009,477	\$1,222,881	\$6,656,647	\$299	\$5,000	\$3,671,000	\$6,656,946	36	5
		2006	60	\$1,121,100	\$1,628,667	\$10,650,355	\$1,450	\$12,919	\$3,847,347	\$10,651,805	32	4
		2007	68	\$1,181,142	\$1,675,737	\$9,377,460	\$1,886	\$15,000	\$4,955,871	\$9,379,346	25	3
		2008	74	\$1,326,522	\$2,418,575	\$16,613,753	\$1,450	\$10,078	\$5,335,643	\$16,615,203	22	0
		2009	78	\$1,365,009	\$2,968,454	\$23,685,685	\$1,450	\$11,000	\$5,449,000	\$23,687,135	18	0
	County	2005	15	\$2,312,207	\$2,847,339	\$9,178,990	\$21,010	\$21,010	\$9,200,000	\$9,200,000	10	0
		2006	16	\$2,593,912	\$4,007,975	\$15,878,089	\$21,911	\$21,911	\$15,900,000	\$15,900,000	9	0
		2007	16	\$3,031,474	\$5,544,561	\$22,395,651	\$4,349	\$4,349	\$22,400,000	\$22,400,000	9	0
		2008	17	\$3,231,934	\$6,190,342	\$25,593,118	\$6,882	\$6,882	\$25,600,000	\$25,600,000	8	0
		2009	17	\$2,778,079	\$4,391,609	\$17,593,194	\$6,806	\$6,806	\$17,600,000	\$17,600,000	8	0
	Special	2005	1	\$1,602,760		\$0	\$1,602,760	\$1,602,760	\$1,602,760	\$1,602,760	3	0
	District	2006	1	\$1,829,613		\$0	\$1,829,613	\$1,829,613	\$1,829,613	\$1,829,613	3	0
		2007	1	\$2,080,432		\$0	\$2,080,432	\$2,080,432	\$2,080,432	\$2,080,432	3	0
		2008	3	\$714,074	\$1,223,824	\$2,122,221	\$5,000	\$5,000	\$2,127,221	\$2,127,221	1	0
		2009	3	\$715,183	\$1,219,682	\$2,113,550	\$10,000	\$10,000	\$2,123,550	\$2,123,550	1	0
	Town,	2005	35	\$491,101	\$1,613,490	\$8,516,573	\$1,000	\$2,700	\$4,796,571	\$8,517,573	24	1
	Village or	2006	36	\$364,917	\$1,243,040	\$7,462,804	\$1,000	\$2,700	\$1,132,663	\$7,463,804	23	1
	Borough	2007	39	\$484,524	\$1,567,622	\$9,616,320	\$700	\$1,000	\$1,948,075	\$9,617,020	20	1
		2008	40	\$431,920	\$1,433,587	\$8,962,055	\$1,000	\$4,700	\$1,564,089	\$8,963,055	19	1
		2009	46	\$460,310	\$1,401,728	\$8,872,744	\$1,000	\$1,214	\$1,760,000	\$8,873,744	13	1
	Township	2005	15	\$32,072	\$53,531	\$184,550	\$1,000	\$1,000	\$185,550	\$185,550	11	2
	1	2006	16	\$34,708	\$56,584	\$193,910	\$1,000	\$1,000	\$194,910	\$194,910	11	1
		2007	15	\$64,811	\$116,579	\$424,000	\$1,000	\$1,000	\$425,000	\$425,000	12	1
		2008	15	\$51,014	\$65,402	\$188,170	\$1,000	\$1,000	\$189,170	\$189,170	13	0
		2009	18	\$51,373	\$66,065	\$203,626	\$1,000	\$1,000	\$204,626	\$204,626	10	0
	Other	2005	7	\$218,716	\$292,731	\$823,611	\$5,000	\$5,000	\$828,611	\$828,611	2	0
		2006	8	\$218,785	\$381,793	\$1,135,641	\$5,000	\$5,000	\$1,140,641	\$1,140,641	1	0
		2007	8	\$234,618	\$362,703	\$1,073,546	\$5,000	\$5,000	\$1,078,546	\$1,078,546	1	0
		2008	8	\$202,824	\$246,646	\$712,524	\$7,000	\$7,000	\$719,524	\$719,524	1	0
		2009	8	\$200,339	\$236,966	\$701,795	\$11,000	\$11,000	\$712,795	\$712,795	1	0
_ I	City	2005	126	\$237,028,081	\$341,353,959	\$2,827,189,350	\$510,586	\$4,990,287	\$778,202,026	\$1,413,200,000	28	2
1		2006	125	\$258,719,848	\$355,049,631	\$2,889,174,350	\$597,972	\$5,500,000	\$728,925,925	\$1,504,300,000	28	3
		2007	128	\$285,264,518	\$406,781,578	\$3,289,494,000	\$1,516,000	\$8,400,000	\$920,234,012	\$1,639,500,000	25	3

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riable/ ase	Type	Yr	N	Mean	Standard deviation	Range	1% percentile	5% percentile	95% percentile	99% percentile	Missing	NA, Unknown etc.
		2008	129	\$294,395,564	\$430,917,277	\$3,510,277,000	\$1,440,313	\$4,698,380	\$1,043,819,951	\$1,725,500,000	24	
		2009	132	\$311,778,721	\$480,438,903	\$3,846,220,800	\$1,469,000	\$5,500,000	\$1,056,200,000	\$2,194,000,000	22	
	County	2005	35	\$1,000,405,789	\$1,204,697,302	\$4,869,549,289	\$375,842	\$645,000	\$4,384,000,000	\$4,869,925,131	10	
		2006	36	\$1,070,807,715	\$1,278,135,161	\$5,084,132,593	\$454,400	\$688,000	\$4,732,000,000	\$5,084,586,993	10	
		2007	36	\$1,187,259,396	\$1,430,268,707	\$5,937,936,635	\$574,700	\$717,000	\$4,900,000,000	\$5,938,511,335	10	
		2008	37	\$1,213,145,100	\$1,404,697,085	\$5,797,060,294	\$793,000	\$970,270	\$4,962,000,000	\$5,797,853,294	9	
		2009	38	\$1,192,546,520	\$1,447,153,612	\$6,261,083,881	\$771,749	\$792,000	\$4,726,000,000	\$6,261,855,630	8	
	Special	2005	11	\$24,260,875	\$38,892,660	\$114,525,279	\$68,209	\$68,209	\$114,593,488	\$114,593,488	1	
	District	2006	11	\$22,188,915	\$38,265,659	\$114,468,519	\$55,279	\$55,279	\$114,523,798	\$114,523,798	1	
		2007	12	\$25,690,724	\$44,103,360	\$134,052,812	\$73,388	\$73,388	\$134,126,200	\$134,126,200	0	
		2008	12	\$24,917,192	\$42,713,819	\$127,606,398	\$56,154	\$56,154	\$127,662,552	\$127,662,552	0	
		2009	12	\$29,455,374	\$50,871,026	\$148,430,899	\$61,353	\$61,353	\$148,492,252	\$148,492,252	0	
	Town,	2005	4	\$4,231,880	\$3,202,413	\$7,224,404	\$319,558	\$319,558	\$7,543,962	\$7,543,962	2	
	Village or	2006	4	\$4,612,564	\$3,356,396	\$7,570,606	\$452,825	\$452,825	\$8,023,431	\$8,023,431	2	
	Borough	2007	5	\$8,425,240	\$8,725,377	\$22,578,877	\$336,683	\$336,683	\$22,915,560	\$22,915,560	1	
		2008	5	\$23,764,996	\$35,761,418	\$85,529,298	\$484,867	\$484,867	\$86,014,165	\$86,014,165	1	
		2009	5	\$8,556,555	\$8,378,067	\$21,672,509	\$573,234	\$573,234	\$22,245,743	\$22,245,743	1	
	Township	2005	2	\$10,485,975	\$3,644,078	\$5,153,504	\$7,909,223	\$7,909,223	\$13,062,727	\$13,062,727	1	
	_	2006	2	\$10,953,052	\$3,460,856	\$4,894,389	\$8,505,857	\$8,505,857	\$13,400,246	\$13,400,246	1	
		2007	2	\$11,298,894	\$3,363,883	\$4,757,249	\$8,920,269	\$8,920,269	\$13,677,518	\$13,677,518	1	
		2008	2	\$11,855,798	\$3,752,800	\$5,307,260	\$9,202,168	\$9,202,168	\$14,509,428	\$14,509,428	1	
		2009	2	\$11,983,750	\$3,994,488	\$5,649,059	\$9,159,220	\$9,159,220	\$14,808,279	\$14,808,279	1	
	Other	2005	21	\$261,932,626	\$359,624,071	\$1,348,950,434	\$179,866	\$584,431	\$873,215,000	\$1,349,130,300	5	
		2006	22	\$319,284,602	\$415,988,700	\$1,440,122,258	\$247,542	\$578,017	\$1,185,530,000	\$1,440,369,800	4	
		2007	22	\$342,241,218	\$446,453,425	\$1,505,757,897	\$296,603	\$597,196	\$1,298,600,000	\$1,506,054,500	4	
		2008	22	\$360,683,708	\$470,622,749	\$1,565,508,988	\$274,112	\$628,058	\$1,408,330,000	\$1,565,783,100	4	
		2009	22	\$379,591,929	\$503,365,948	\$1,619,362,266	\$317,734	\$740,769	\$1,570,199,400	\$1,619,680,000	4	
II	City	2005	67	\$35,383,796	\$35,781,906	\$158,971,292	\$25,884	\$347,125	\$117,466,206	\$158,997,176	29	
		2006	70	\$39,819,963	\$51,137,519	\$313,193,232	\$25,884	\$300,385	\$126,625,465	\$313,219,116	26	
		2007	77	\$41,558,723	\$56,308,131	\$393,375,104	\$25,884	\$331,755	\$134,407,894	\$393,400,988	19	
		2008	79	\$44,708,152	\$66,650,282	\$503,668,642	\$25,000	\$401,806	\$140,801,269	\$503,693,642	17	
		2009	85	\$43,765,136	\$62,755,256	\$452,728,465	\$3,674	\$401,675	\$147,318,455	\$452,732,139	11	
	County	2005	16	\$445,138,720	\$609,118,111	\$1,549,922,171	\$240,000	\$240,000	\$1,550,162,171	\$1,550,162,171	9	
	_	2006	17	\$440,336,549	\$624,659,452	\$1,646,080,870	\$300,000	\$300,000	\$1,646,380,870	\$1,646,380,870	8	
		2007	18	\$412,085,272	\$605,231,009	\$1,735,494,800	\$115,000	\$115,000	\$1,735,609,800	\$1,735,609,800	7	
		2008	18	\$437,726,654	\$642,529,186	\$1,848,502,500	\$375,000	\$375,000	\$1,848,877,500	\$1,848,877,500	7	
		2009	19	\$425,084,101	\$646,571,602	\$1,902,843,800	\$250,000	\$250,000	\$1,903,093,800	\$1,903,093,800	6	
	Special	2005	3	\$4,717,371	\$6,655,759	\$12,169,393	\$189,980	\$189,980	\$12,359,373	\$12,359,373	1	
	District	2006	3	\$4,840,442	\$6,674,574	\$12,288,388	\$201,663	\$201,663	\$12,490,051	\$12,490,051	1	
		2007	3	\$4,808,576	\$6,432,274	\$11,965,295	\$190,000	\$190,000	\$12,155,295	\$12,155,295	1	
		2008	4	\$4,229,198	\$6,355,894	\$13,491,741	\$195,932	\$195,932	\$13,687,673	\$13,687,673	0	
		2009	4	\$4,611,172	\$7,006,539	\$14,852,775	\$201,886	\$201,886	\$15,054,661	\$15,054,661	0	
	Town,	2005	45	\$16,210,507	\$35,001,388	\$218,932,639	\$215,919	\$444,269	\$58,362,214	\$219,148,558	15	
	Village or	2006	46	\$15,989,338	\$34,915,096	\$222,214,425	\$209,472	\$473,231	\$54,123,935	\$222,423,897	14	

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----City

→ Special District

* Township

→ Other

2009

Town, Village or Borough

Variable/					Standard		1%	5%	95%			NA, Unknown
Phase	Type	Yr	N	Mean	deviation	Range	percentile	percentile	percentile	99% percentile	Missing	etc.
	Borough	2007	50	\$17,565,433	\$44,077,685	\$299,039,923	\$700	\$410,000	\$62,926,148	\$299,040,623	10	0
		2008	50	\$17,967,311	\$44,572,438	\$302,513,580	\$231,182	\$465,717	\$67,767,391	\$302,744,762	10	0
		2009	53	\$17,578,557	\$42,500,189	\$296,620,727	\$252,869	\$452,422	\$58,509,129	\$296,873,596	7	0
	Township	2005	18	\$4,198,795	\$3,686,348	\$12,895,543	\$699,257	\$699,257	\$13,594,800	\$13,594,800	10	0
		2006	17	\$4,767,803	\$3,973,515	\$13,544,972	\$1,378,028	\$1,378,028	\$14,923,000	\$14,923,000	11	0
		2007	18	\$4,830,704	\$4,071,495	\$14,279,612	\$580,888	\$580,888	\$14,860,500	\$14,860,500	10	0
		2008	18	\$4,882,747	\$4,094,838	\$14,949,530	\$510,770	\$510,770	\$15,460,300	\$15,460,300	10	0
		2009	19	\$4,770,989	\$3,959,317	\$14,862,226	\$595,374	\$595,374	\$15,457,600	\$15,457,600	9	0
	Other	2005	8	\$33,574,821	\$42,178,871	\$132,068,665	\$670,573	\$670,573	\$132,739,238	\$132,739,238	1	0
		2006	8	\$36,414,054	\$44,603,484	\$138,111,581	\$929,154	\$929,154	\$139,040,735	\$139,040,735	1	0
		2007	8	\$37,390,618	\$46,330,951	\$144,774,676	\$1,083,218	\$1,083,218	\$145,857,894	\$145,857,894	1	0
		2008	8	\$42,732,906	\$51,295,837	\$156,959,229	\$930,020	\$930,020	\$157,889,249	\$157,889,249	1	0
		2009	8	\$39,942,877	\$48,828,819	\$151,555,981	\$1,491,061	\$1,491,061	\$153,047,042	\$153,047,042	1	0

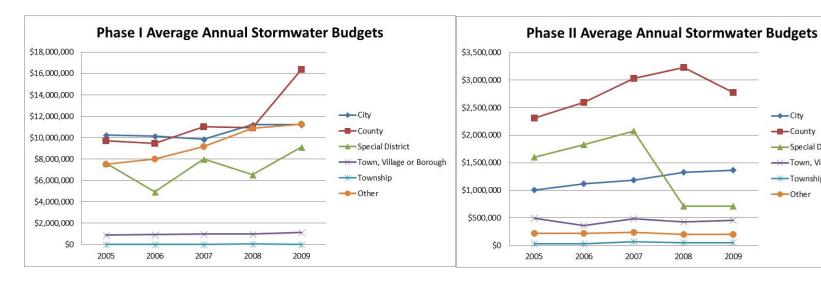
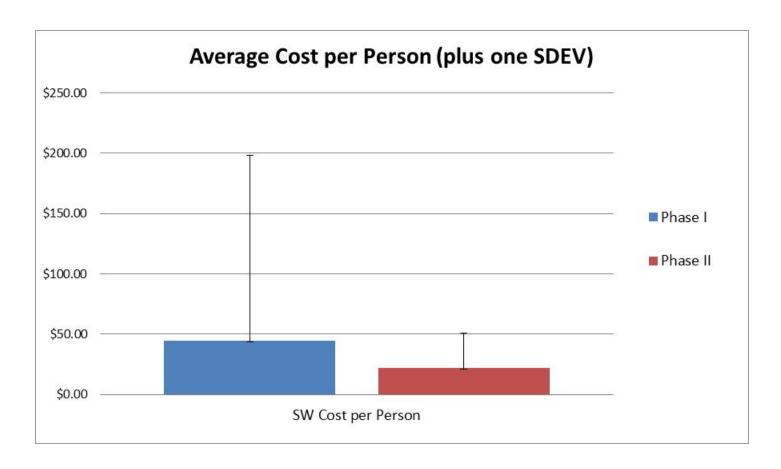


Table B-2b. Per capita total operating budget and stormwater-related budget

Variable	Phase	N	mean	std deviation	range	1% percentile	5% percentile	95% percentile	99% percentile	Missing
Cost/person	Ι	210	\$44.74	\$153.50	\$2,116.96	\$0.46	\$1.44	\$127.28	\$424.86	39
Cost/person	II	151	\$21.70	\$29.08	\$157.60	\$0.06	\$0.49	\$84.67	\$137.48	71

Notes: Cost per person is computed by dividing the average total budget over 2005-2009 by the reported jurisdiction population from 2009. On average, 4.79 years of data were used for Phase I MS4s, and 4.29 years were used for Phase II MS4s (both range 1-5 years of data). Missing data result from either missing jurisdiction population data, or missing SW Budget data for all years, or both.



Question B-3: Describe the activities included in your FY 2009 budget and percent (or actual dollar amount if available) of the total stormwater budget that you approximately spend on the activities. Many of your stormwater activities may not fall distinctly in these categories. Describe your particular activities that generally fall within these categories in the comment filed. The percent should add up to 100% and include all activities. The total dollar amount should equal the 2009 stormwater budget provided in B-2. Provide your best estimate. (The actual budget figures were used preferentially if the respondent provided both percent of stormwater budget and actual amounts.)

Table B-3: Phase II expenditures by component/activity

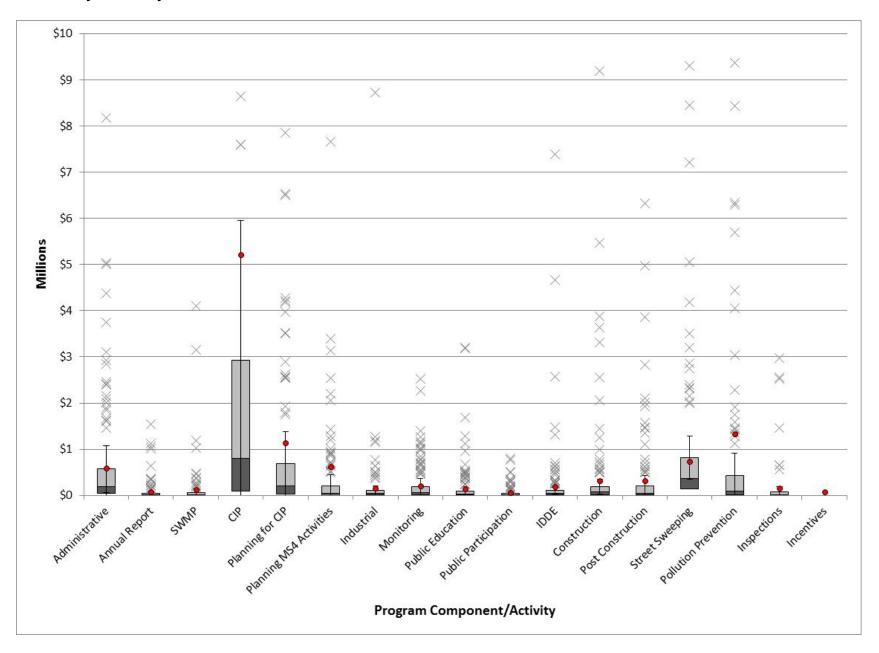
Program Component/Activity	Maximum	Median	Mean	Minimum	N
Phase I					•
Program administration	\$10,917,920	\$184,335	\$605,551	\$1	201
Developing annual report	\$1,539,436	\$18,519	\$73,649	\$500	157
Developing SWMP	\$4,099,957	\$32,875	\$158,902	\$0	98
Capital expenses	\$397,149,988	\$906,220	\$5,575,152	\$0	172
Planning/engineering for CIPs	\$19,736,240	\$292,013	\$1,293,771	\$1	144
Planning/engineering for other activities	\$27,294,800	\$62,858	\$758,474	\$0	116
Industrial	\$8,730,606	\$50,000	\$178,623	\$0	141
Monitoring	\$2,519,520	\$77,640	\$221,681	\$0	150
Public education and outreach	\$3,194,000	\$30,000	\$148,490	\$0	169
Public involvement and participation	\$792,000	\$20,274	\$69,108	\$0	106
Illicit discharge detection and elimination	\$7,395,000	\$50,000	\$207,137	\$0	151
Construction	\$9,194,000	\$75,140	\$339,593	\$1	156
Post-construction	\$6,326,122	\$74,164	\$396,222	\$0	114
Street sweeping	\$9,311,000	\$417,018	\$809,929	\$1	166
Other pollution prevention/good housekeeping	\$76,005,520	\$108,113	\$1,446,102	\$0	158
Inspection and enforcement	\$2,972,687	\$50,288	\$230,650	\$0	66
Incentives and rebates	\$2,500,000	\$1	\$211,702	\$0	21
Phase II					
Program administration	\$998,442	\$18,488	\$90,508	\$1	136
Developing annual report	\$350,000	\$3,749	\$14,492	\$1	118
Developing SWMP	\$350,000	\$5,645	\$21,139	\$0	89
Capital expenses	\$19,423,451	\$155,590	\$740,830	\$1	120
Planning/engineering for CIPs	\$2,901,674	\$21,262	\$147,875	\$0	91
Planning/engineering for other activities	\$1,225,000	\$7,000	\$43,439	\$0	65
Industrial	\$350,000	\$2,250	\$38,478	\$0	20
Monitoring	\$276,134	\$4,000	\$20,569	\$0	67
Public education and outreach	\$237,672	\$5,000	\$19,918	\$1	117
Public involvement and participation	\$140,000	\$4,037	\$15,927	\$0	92
Illicit discharge detection and elimination	\$718,497	\$5,428	\$30,218	\$1	96
Construction	\$1,509,120	\$10,000	\$63,055	\$0	82
Post-construction	\$661,910	\$8,034	\$51,351	\$0	73
Street sweeping	\$2,634,167	\$19,334	\$83,086	\$0	102
Other pollution prevention/good housekeeping	\$1,482,313	\$8,250	\$51,225	\$1	117
Inspection and enforcement	\$658,765	\$3,011	\$41,159	\$0	43
Incentives and rebates	\$100,000	\$1	\$13,372	\$0	13
All					
Program administration	\$10,917,920	\$85,973	\$397,699	\$1	337
Developing annual report	\$1,539,436	\$8,468	\$48,265	\$1	275
Developing SWMP	\$4,099,957	\$15,000	\$93,336	\$0	187
Capital expenses	\$397,149,988	\$422,050	\$3,588,444	\$0	292

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Program Component/Activity	Maximum	Median	Mean	Minimum	N
Planning/engineering for CIPs	\$19,736,240	\$100,000	\$850,041	\$0	235
Planning/engineering for other activities	\$27,294,800	\$32,137	\$501,694	\$0	181
Industrial	\$8,730,606	\$44,277	\$161,213	\$0	161
Monitoring	\$2,519,520	\$36,867	\$159,587	\$0	217
Public education and outreach	\$3,194,000	\$15,419	\$95,892	\$0	286
Public involvement and participation	\$792,000	\$9,860	\$44,397	\$0	198
Illicit discharge detection and elimination	\$7,395,000	\$22,000	\$138,375	\$0	247
Construction	\$9,194,000	\$46,903	\$244,316	\$0	238
Post-construction	\$6,326,122	\$32,100	\$261,593	\$0	187
Street sweeping	\$9,311,000	\$188,500	\$533,294	\$0	268
Other pollution prevention/good housekeeping	\$76,005,520	\$35,000	\$852,645	\$0	275
Inspection and enforcement	\$2,972,687	\$10,487	\$155,897	\$0	109
Incentives and rebates	\$2,500,000	\$1	\$135,870	\$0	34

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Question B-4: What is the estimated cost of the industrial component of your stormwater program?

Table B-4. Amount spent on the industrial component

Statistic	Phase I	Phase II	All
Minimum	\$0	\$1,000	\$0
Median	\$48,000	\$6,000	\$45,781
Maximum	\$3,117,791	\$59,000	\$3,117,791
Count	146	7	153
No response	103	215	318

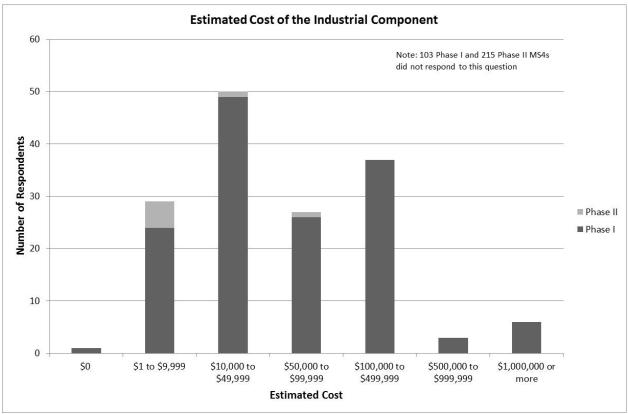


Figure 7. Estimated cost of the industrial program

Question B-5: What is the estimated cost of your monitoring component of your stormwater program?

Table B-5. Amount spent on the monitoring component

Statistic	Phase I	Phase II	All
Minimum	\$890	\$1	\$1
Median	\$75,423	\$5,378	\$40,000
Maximum	\$2,266,000	\$480,092	\$2,266,000
Count	162	65	227
Not applicable	87	157	244

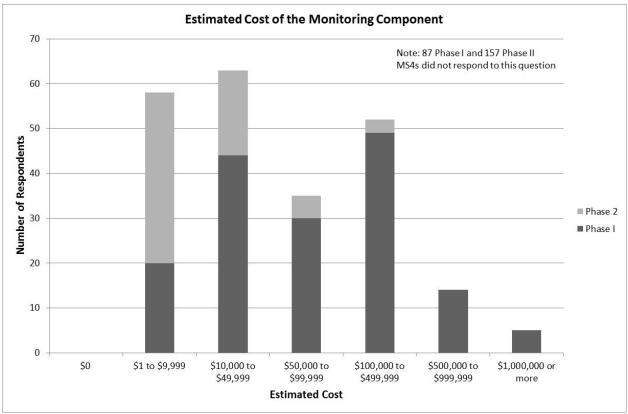


Figure 8. Estimated cost of the monitoring program

Question B-6: What is the estimated number of full time equivalents (FTEs) that your organization has devoted to stormwater related activities over the past five years (corresponds to the budget in Question B-2)? In the first row, enter hours worked by staff who work directly for the stormwater management program. If there are municipal staff whose primary responsibility is to non-stormwater programs, yet still contribute to the work of the stormwater program, please estimate the hours in FTEs they contribute in the second row. EPA recognizes that this second category may not be routinely tracked, and is only asking for a best estimate.

This was not included in the summary pending further work to resolve discrepancies in amounts reported.

Question B-7: What percentage of your stormwater program revenue comes from the following sources. (Total must equal 100%)

Table B-7a. Percent of MS4s that Receive Funding from Each Revenue Source

	Pha	Phase I		se II	All		
Revenue Source	Count	%	Count	%	Count	%	
Stormwater Utility or User Fee	139	56%	114	51%	253	54%	
Ad Valorem Taxes	104	42%	97	44%	201	43%	
Permitting and Other Fees	127	51%	100	45%	227	48%	
Sales Taxes	90	36%	78	35%	168	36%	
Special Tax Districts	88	35%	73	33%	161	34%	
New Development Impact Fees	90	36%	76	34%	166	35%	
Grants	111	44%	83	37%	194	41%	

	Phase I		Pha	se II	All		
Revenue Source	Count	%	Count	%	Count	%	
Intergovernmental and/or State Shared Revenue	102	41%	79	36%	181	38%	
Revenue from the Sale of Bonds	79	32%	71	32%	150	32%	
Other	147	59%	112	50%	259	55%	

The following table provides a further breakdown of revenue sources based on the percentage of total revenue attributable to each source.

Table B-7b. Frequency distribution of MS4 revenue sources

Percent of Funding from Each Source	0	Up to 25%	25% to 50%	50% to 75%	75% to 100%
Phase I					
Stormwater Utility or User Fee	24	9	8	13	75
Ad Valorem Taxes	18	16	6	9	15
Permitting and Other Fees	16	69	9	1	1
Sales Taxes	17	15	6	3	7
Special Tax Districts	18	12	1	1	17
New Development Impact Fees	18	40	1	1	0
Grants	19	49	2	1	0
Intergovernmental and/or State Shared Revenue	20	30	6	2	5
Revenue from the Sale of Bonds	21	8	3	5	1
Other	12	55	10	11	43
Phase II					
Stormwater Utility or User Fee	24	4	1	5	49
Ad Valorem Taxes	15	11	4	5	35
Permitting and Other Fees	12	38	4	1	5
Sales Taxes	18	6	4	3	8
Special Tax Districts	19	2	1	1	4
New Development Impact Fees	17	12	0	0	0
Grants	17	16	1	2	3
Intergovernmental and/or State Shared Revenue	18	9	6	2	9
Revenue from the Sale of Bonds	17	2	6	0	0
Other	20	19	2	1	34
All					
Stormwater Utility or User Fee	48	13	9	18	124
Ad Valorem Taxes	33	27	10	14	50
Permitting and Other Fees	28	107	13	2	6
Sales Taxes	35	21	10	6	15
Special Tax Districts	37	14	2	2	21
New Development Impact Fees	35	52	1	1	0
Grants	36	65	3	3	3
Intergovernmental and/or State Shared Revenue	38	39	12	4	14
Revenue from the Sale of Bonds	38	10	9	5	1
Other	32	74	12	12	77

Question B-8: What percentage of your stormwater program revenue goes to fund the following activities? (Total must equal 100%)

Table B-8a. MS4s that Fund Each Activity with Stormwater Program Revenue

	Phase I		Pha	se II	All	
Activity	Count %		Count	%	Count	%
Operations and Maintenance Funding	215	86%	169	76%	384	82%
Directly Funded Capital Improvements	162	65%	135	61%	297	63%
Capital Debt Service	111	44%	95	43%	206	44%
Other	142	57%	108	49%	250	53%

Table B-8b. Frequency distribution of stormwater program revenue usage

Percent of Funding Used for Each			25% to	50% to	75% to				
Activity	0	Up to 25%	50%	75%	100%				
Phase I									
Operations And Maintenance Funding	5	24	50	48	85				
Directly Funded Capital Improvements	16	58	42	15	6				
Capital Debt Service	21	38	11	2	3				
Other	15	35	28	8	15				
Phase II									
Operations And Maintenance Funding	16	14	25	27	79				
Directly Funded Capital Improvements	18	34	28	16	4				
Capital Debt Service	16	22	6	4	2				
Other	11	20	6	4	17				
All									
Operations And Maintenance Funding	21	38	75	75	164				
Directly Funded Capital Improvements	34	92	70	31	10				
Capital Debt Service	37	60	17	6	5				
Other	26	55	34	12	32				

Question B-9: If capital improvements are funded in part by capital debt financing, what percentage of your stormwater capital debt financing comes from the following sources. (Total must equal 100%)

Table B-9a. MS4s that receive debt financing from each source

	Phase I		Pha	se II	All	
Source	Count	%	Count	%	Count	%
General Obligation Bonds	88	35%	95	43%	183	39%
Stormwater Revenue Bonds	73	29%	73	33%	146	31%
Sales Tax Bonds	64	26%	69	31%	133	28%
Combined Stormwater/Other Bonds	69	28%	71	32%	140	30%
Benefit District Bonds	64	26%	69	31%	133	28%
State Revolving Fund Loans	70	28%	71	32%	141	30%
Other	87	35%	82	37%	169	36%

Table B-9b. Frequency distribution of capital debt financing sources

Percent of Capital Debt Financing			25% to	50% to	75% to						
from Each Source	0	Up to 25%	50%	75%	100%						
Phase I											
General Obligation Bonds	15	2	1	1	32						
Stormwater Revenue Bonds	17	0	0	1	14						
Sales Tax Bonds	14	0	0	0	1						
Combined Stormwater/Other Bonds	13	0	0	1	6						
Benefit District Bonds	15	0	0	0	2						
State Revolving Fund Loans	14	4	0	1	6						
Other	13	6	3	0	19						
Phase II											
General Obligation Bonds	11	1	1	1	36						
Stormwater Revenue Bonds	14	2	0	1	4						
Sales Tax Bonds	13	2	0	0	0						
Combined Stormwater/Other Bonds	13	1	0	0	3						
Benefit District Bonds	13	2	0	0	0						
State Revolving Fund Loans	13	3	0	0	2						
Other	14	1	1	0	12						
All											
General Obligation Bonds	26	3	2	2	68						
Stormwater Revenue Bonds	31	2	0	2	18						
Sales Tax Bonds	27	2	0	0	1						
Combined Stormwater/Other Bonds	26	1	0	1	9						
Benefit District Bonds	28	2	0	0	2						
State Revolving Fund Loans	27	7	0	1	8						
Other	27	7	4	0	31						

Question B-10: Does your jurisdiction have the authority to charge and/or increase stormwater fees?

Table B-10. Authority to charge and/or increase stormwater fees

	Phase I		Phas	se II	A	ll
Response	Count	%	Count	%	Count	%
Yes	149	60%	122	55%	271	58%
No	97	39%	84	38%	181	38%
No answer	3	1%	16	7%	19	4%

Question B-11: Does your jurisdiction charge one time stormwater inspection or plan review fees for property development?

Table B-11. One-time fees charged for inspections and plan review

	Phase I		Phase II		All	
Response	Count	%	Count	%	Count	%
Stormwater inspection only	17	7%	12	5%	29	6%
Stormwater plan review only	73	29%	43	19%	116	25%
Both	83	33%	66	30%	149	32%
None	86	34%	97	44%	183	39%

Question B-12: Do you charge a one-time development fee for new stormwater permit applications?

Table B-12. One-time fees charged for new stormwater permit applications

	Phase I		Phase II		All	
Response	Count	%	Count	%	Count	%
Yes	80	32%	61	27%	141	30%
No	165	66%	150	68%	315	67%
No answer	4	2%	11	5%	15	3%

Question B-13: What is the basis for this one-time development fee for new, single-family residential stormwater permit applications?

Table B-13. Basis for one-time development fee for new, single-family residential stormwater permit applications

	Pha	Phase I		Phase II		ll
Basis	Count	%	Count	%	Count	%
Flat Fee	24	10%	15	7%	39	8%
Per \$1,000 of property value	2	1%	1	0%	3	1%
Per acre of gross area	14	6%	10	5%	24	5%
Per square foot of impervious area	4	2%	3	1%	7	1%
Per square foot of total floor area	0	0%	1	0%	1	0%
Other	36	14%	24	11%	60	13%
None	59	24%	60	27%	119	25%
No answer	110	44%	108	49%	218	46%

Question B-14: What is the basis for this one-time development fee for new, multi-family residential stormwater permit applications?

Table B-14. Basis for one-time development fee for new, multi-family residential stormwater permit applications

	Phase I		Phas	se II	All	
Basis	Count	%	Count	%	Count	%
Flat Fee	13	5%	11	5%	24	5%
Per \$1,000 of property value	2	1%	1	0%	3	1%
Per acre of gross area	17	7%	10	5%	27	6%
Per square foot of impervious area	4	2%	6	3%	10	2%
Per square foot of total floor area	2	1%	2	1%	4	1%
None	58	23%	60	27%	118	25%
Other	41	16%	26	12%	67	14%
No answer	112	45%	106	48%	218	46%

Question B-15: What is the basis for this one-time development fee for new, non-residential stormwater permit applications?

Table B-15. Basis for one-time development fee for new, non-residential stormwater permit applications

	Phase I		Phase II		All	
Basis	Count	%	Count	%	Count	%
Flat Fee	11	4%	12	5%	23	5%
Per \$1,000 of property value	3	1%	1	0%	4	1%
Per acre of gross area	18	7%	11	5%	29	6%
Per square foot of impervious area	5	2%	7	3%	12	3%
Per square foot of total floor area	2	1%	2	1%	4	1%
None	119	48%	128	58%	247	52%
Other	48	19%	32	14%	80	17%
No answer	43	17%	29	13%	72	15%

Question B-16: Approximately what percent of your costs that are associated with new development are covered by these one-time development fees (e.g., construction of additional infrastructure to service a new development)?

Table B-16. Percent of costs associated with new development covered by one-time development fees

	Pha	se I	Phas	se II	Al	1
Response	Count	%	Count	%	Count	%
0%	4	2%	3	1%	7	1%
0.75%	1	0%	0	0%	1	0%
1%	0	0%	1	0%	1	0%
10%	0	0%	1	0%	1	0%
20%	1	0%	0	0%	1	0%
49%	1	0%	0	0%	1	0%
50%	4	2%	1	0%	5	1%
60%	0	0%	1	0%	1	0%
75%	1	0%	0	0%	1	0%
80%	1	0%	0	0%	1	0%
95%	1	0%	0	0%	1	0%
100%	12	5%	3	1%	15	3%
Unknown/Not Applicable/No Answer	223	90%	212	95%	435	92%

Question B-17: Do you charge recurring stormwater fees to property owners?

Table B-17. Recurring stormwater fees charged

	Phase I		Phase II		All	
Response	Count	%	Count	%	Count	%
Yes	119	48%	57	26%	176	37%
No	118	47%	143	64%	261	55%
Not applicable	9	4%	9	4%	18	4%
No Answer	3	1%	13	6%	16	3%

Question B-18: What is the basis for the recurring stormwater fees for single-family residential properties?

Table B-18. Basis for recurring stormwater fees for single-family residential properties

	Phase I		Phase II		A	ll
Basis	Count	%	Count	%	Count	%
Flat Fee	47	19%	33	15%	80	17%
Per \$1,000 of property value	1	0%	1	0%	2	0%
Per acre of gross area	4	2%	0	0%	4	1%
Per acre of gross area with runoff factor	6	2%	1	0%	7	1%
Per square foot of impervious area	13	5%	9	4%	22	5%
Other	46	18%	16	7%	62	13%
None	36	14%	42	19%	78	17%
No answer	96	39%	120	54%	216	46%

Question B-19: What is the basis for the recurring stormwater fees for multi-family residential properties?

Table B-19. Basis for recurring stormwater fees for multi-family residential properties

	Pha	Phase I		Phase II		ll .
Basis	Count	%	Count	%	Count	%
Flat Fee	16	6%	14	6%	30	6%
Per \$1,000 of property value	1	0%	1	0%	2	0%
Per acre of gross area	5	2%	5	2%	10	2%
Per acre of gross area with runoff factor	7	3%	3	1%	10	2%
Per square foot of impervious area	19	8%	18	8%	37	8%
None	37	15%	46	21%	83	18%
Other	67	27%	18	8%	85	18%
No answer	97	39%	117	53%	214	45%

Question B-20: What is the basis for the recurring stormwater fees for non-residential properties?

Table B-20. Basis for recurring stormwater fees for non-residential properties

	Phase I		Phas	se II	All	
Basis	Count	%	Count	%	Count	%
Flat Fee	9	4%	5	2%	14	3%
Per \$1,000 of property value	1	0%	2	1%	3	1%
Per acre of gross area	7	3%	3	1%	10	2%
Per acre of gross area with runoff factor	7	3%	5	2%	12	3%
Per square foot of impervious area	30	12%	28	13%	58	12%
None	104	42%	130	59%	234	50%
Other	65	26%	22	10%	87	18%
No answer	26	10%	27	12%	53	11%

Question B-21: Approximately what percent of the costs incurred by your organization associated with the operations and maintenance of long-term stormwater controls and services do these recurring fees cover?

Table B-21. Costs associated with long-term O&M that were covered by recurring stormwater fees

Percent of Costs Associated with		
New Development Covered by		
One-Time Development Fees	Number of MS4s	Percent of All MS4s
Phase I		
0%	8	3%
Up to 25%	8	3%
25% to 50%	4	2%
50% to 75%	11	4%
75% to 100%	70	28%
No answer	148	
Phase II		
0%	8	4%
Up to 25%	6	3%
25% to 50%	2	1%
50% to 75%	4	2%
75% to 100%	43	19%
No answer	159	

Note: 241 respondents indicated that this was not applicable.

Question B-22: Did your jurisdiction initiate capacity expansion projects to address inadequate stormwater system capacity anytime in the period of FY 2005 through FY 2009?

Table B-22. Capacity expansion projects initiated

	Phase I		Phase II		All	
Response	Count	%	Count	%	Count	%
Yes	109	44%	54	24%	163	35%
No	132	53%	153	69%	285	61%
No Answer	8	3%	15	7%	23	5%

Question B-23: What was the annual budget for capacity expansion? What percentage of your total stormwater system service area was addressed by the capacity expansion? If not applicable, write "NA." If unknown write "UK."

Table B-23a. Annual budget for capacity expansion

Statistic	2005	2006	2007	2008	2009
Minimum	\$1,820	\$3,300	\$950	\$1,050	\$7,000
Median	\$1,591,039	\$1,080,161	\$1,987,500	\$1,725,000	\$1,400,540
Maximum	\$229,142,161	\$245,984,696	\$253,222,850	\$349,895,861	\$391,999,988
Count	79	86	89	88	97
Not applicable	11	9	8	10	9
Unknown	24	22	18	19	19
No answer	357	386	468	354	346

Table B-23b. Percentage of total stormwater system service area addressed by capacity expansion

Statistic	2005	2006	2007	2008	2009
Minimum	0.02%	0.05%	0.003%	0.0002%	0.002%
Median	2%	2.5%	5%	6%	2%
Maximum	100%	100%	100%	100%	100%
Count	21	22	23	21	31
Not applicable	9	8	8	8	7
Unknown	31	32	31	31	33
No answer	408	408	407	407	400

Question B-24: Did your jurisdiction initiate retrofit projects anytime in the period of FY 2005 through FY 2009? (Check the answer that best applies.)

Table B-24. Retrofit projects initiated

	Phase I		Phase II		All	
Response	Count	%	Count	%	Count	%
Yes	46	18%	18	8%	64	14%
Yes, only on public property	66	27%	36	16%	102	22%
No	126	51%	154	69%	280	59%
No answer	11	4%	14	6%	25	5%

Question B-25: What was the annual retrofit budget and number of projects completed? If not applicable, write "NA." If unknown write "UK."

Table B-25. Annual retrofit budget and number of projects completed

Statistic	2005	2006	2007	2008	2009
Annual retrofit b	udget				
Minimum	\$2,850	\$10,000	\$70	\$2,000	\$0
Median	\$465,007	\$763,828	\$464,575	\$618,768	\$425,613
Maximum	\$14,500,000	\$14,200,000	\$13,716,000	\$11,596,902	\$17,779,000
Count	57	58	73	83	93
Not applicable	35	36	33	28	31
Unknown	40	40	39	35	36
Number of project	cts completed				
Minimum	1	1	1	1	1
Median	3.5	3	3	2.5	2
Maximum	23	76	86	342	114
Count	44	48	57	66	77
Not applicable	27	27	26	24	24
Unknown	37	37	36	31	31

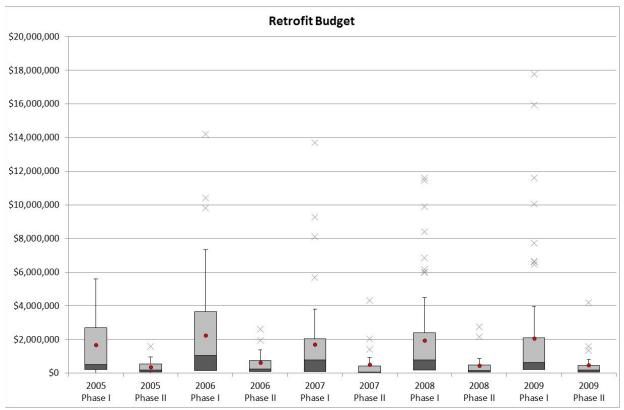


Figure 9. Annual retrofit budget

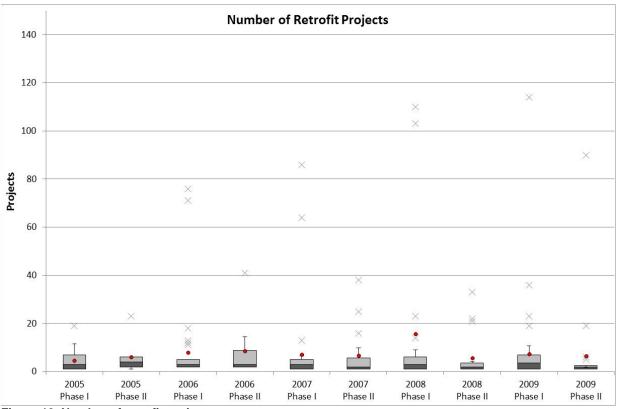


Figure 10. Number of retrofit projects

Question B-26: Did your jurisdiction initiate projects for stream restoration associated with correcting or mitigating impairment from urban runoff anytime in the period of FY 2005 through FY 2009?

Table B-26. Stream restoration projects initiated

	Phase I		Phase II		All	
Response	Count	%	Count	%	Count	%
Yes	72	29%	39	18%	111	24%
No	165	66%	165	74%	330	70%
No answer	12	5%	18	8%	30	6%

Question B-27: What was the annual budget and miles of stream restored that was associated with urban runoff? If not applicable, write "NA." If unknown, write "UK."

Table B-27. Annual stream restoration budget and miles of stream restored

Statistic	2005	2006	2007	2008	2009
Annual stream re	estoration budget				
Minimum	\$1	\$1	\$1	\$1	\$3
Median	\$305,679	\$566,391	\$226,747	\$322,333	\$300,000
Maximum	\$11,000,000	\$12,000,000	\$10,263,000	\$10,630,100	\$9,230,000
Count	42	40	50	56	57
Not applicable	21	22	20	21	20
Unknown	16	16	13	11	12
Miles of stream r	estored				
Minimum	0.02	0.05	0.02841	0.01	0.05
Median	0.5	0.725	0.5	0.438	0.5
Maximum	19.5	24.2	12	12	12
Count	29	26	31	36	37
Not applicable	16	16	16	15	16
Unknown	18	19	16	17	16

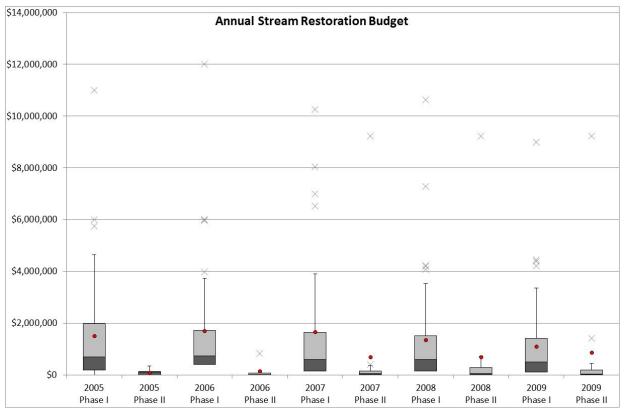


Figure 11. Annual stream restoration budget

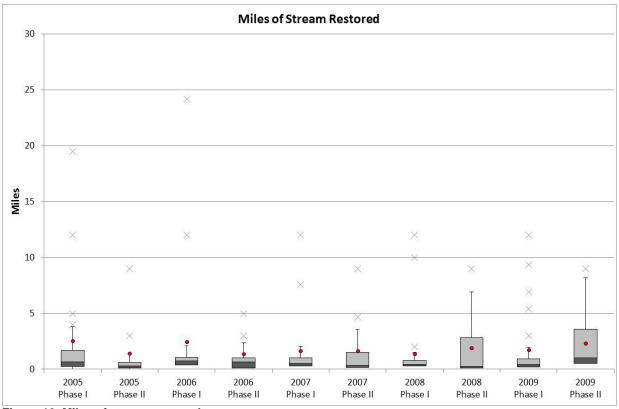


Figure 12. Miles of stream restored

Question B-28: What was the purpose or goal of stream restoration? (Check all the answers that apply.)

Table B-28. Purpose or goal of stream restoration

	Phase I		Phase II		All	
Response	Count	%	Count	%	Count	%
Erosion control to reduce sedimentation of downstream	43	18%	23	10%	66	14%
reservoir						
Stream bank stabilization to reduce scouring of	60	25%	29	13%	89	19%
infrastructure						
Stream bank stabilization to reduce property loss due to	60	25%	26	11%	86	18%
erosion						
Flood control	45	19%	15	7%	60	13%
Habitat protection, fisheries concerns	47	19%	16	7%	63	13%
Aesthetics	34	14%	12	5%	46	10%
Other	24	10%	15	7%	39	8%

Question B-29: Indicate the type of stabilization measures that were used?

Table B-29. Type of stabilization measures

	Phase I		Phase II		A	ll
Response	Count	%	Count	%	Count	%
Vegetative stabilization	7	3%	7	3%	14	3%
Non-vegetative stabilization	4	2%	7	3%	11	2%
Combination of vegetative and non-vegetative measures	64	26%	27	12%	91	19%
Not applicable	18	7%	28	13%	46	10%
No answer	156	63%	153	69%	309	66%